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Successful IT:

Modernising Government in Action

**Modernising
government**

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Foreword by Rt Hon Ian McCartney MP, Minister of State, Cabinet Office

This Government is committed to modernising our public services. We are working to deliver improvements in key areas such as health, education and law and order. To achieve our goals we are making radical changes to how the public sector works.

Information technology (IT) is a vital tool in this process. It offers opportunities to deliver services faster, more effectively and in innovative ways. The e-government Strategy, published in April, sets out our commitment to using IT to deliver services in new ways. We want to focus on the needs of the citizen rather than those of Government departments.

However, harnessing the power of IT is not always easy. The tasks involved are very complex and fraught with risk. Government has already successfully implemented a range of complex projects. However, we still need to improve performance and avoid the mistakes of the past.

This report aims to produce that improvement. It sets out a package of measures to help us deliver effective modernisation through IT. Putting them into practice will require commitment across Government, as well as from our private sector partners, and I am confident we can succeed.

The recommendations in this report will enable us to put our modernising vision into practice. They are a vital part of turning our strategy into real improvements in public services.

Ian McCartney MP,
Minister of State, Cabinet Office

EXECUTIVE SUMMARY

1. The public sector is undergoing radical change. In the *Modernising Government* White Paper the Government set itself ambitious goals for transforming public services, and the Civil Service is being reformed to meet these challenges. Improvement in the public sector will require effective use of information technology (IT). The first ever e-government Strategy, published in April 2000, sets out how IT will change the way the public sector works.

2. In the past, Government IT projects have too often missed delivery dates, run over budget or failed to fulfil requirements. This review was set up to improve the way Government handles IT projects.

3. Our most important message is that thinking in terms of 'IT projects' is itself a primary source of problems. Delivering IT is only ever part of the implementation of new, more effective, ways of working. The IT has to fit closely, for example, with the demands of the public and the new working practices needed to produce the desired changes. Achieving this requires a clear vision of the context in which IT is being implemented.

> *A change of approach is needed. Rather than think of IT projects, the public sector needs to think in terms of projects to change the way Government works, of which new IT is an important part. Our recommendations aim to achieve this change.*

4. In addition to changing its overall approach, the public sector needs to do much to improve the delivery of the projects themselves and we are also putting forward measures to address this.

5. There is no single, simple solution to the problems we have seen. Our report is based on evidence from extensive research undertaken in the UK public and private sectors and abroad, which shows that there are a great many reasons why failures occur. These cannot be addressed by one or two catch-all measures and, accordingly, we have made many recommendations.

> *The overall aim of our work has been to make recommendations that will raise the standards of all our projects to the level of the best, and provide mechanisms to underpin the process of improvement.*

6. In February 2000, five recommendations from the review were released early and action has already begun on putting them into practice. These original recommendations have been incorporated into Recommendations 4, 21, 23, 28 and 30 of this report.

The areas for improvement

7. The change in approach described in paragraph 3 is about bringing in a focus on business change. This means that, when organisations are managing programmes and projects, it is vital they concentrate on how to deliver improvements to the way they do business. Too often we have seen an approach that looks only at part of the change programme (for example, bringing in new

technology) and does not integrate this with other elements (such as culture change) or take an overall view of the whole change process. Achieving and maintaining this integration is a vital, and ongoing, management task.

> *The recommendations in Section 1 aim to improve the focus on business change across Government and propose methods for achieving and maintaining this.*

8. Achieving integration of all the aspects of change requires effective leadership and that is only possible where responsibility for the delivery of a project or programme falls to an individual. If it is not clear who is taking charge, then it is almost impossible for an initiative to succeed.

> *The recommendations in Section 2 aim to encourage good leadership and establish clear responsibility for IT-based change programmes and projects. They include a requirement for them to have a Senior Responsible Owner (SRO) and give a description of the SRO role.*

9. Good leaders and clear responsibility for change are not sufficient. There must be people in place who have the ability to deliver. Delivering change is a challenging task. Highly skilled and experienced managers are vital to success.

> *The recommendations in Section 3 aim to improve project management across Government. They include the establishment of systems for matching project managers to projects and increasing skills and awareness.*

10. Focusing on delivering benefits to a business requires awareness of the potential risks to that business if a project fails. In modern organisations, with IT as essential to operations as buildings or transport services, the risks presented by a failing project can be enormous. While improving general project management skills will help, there are other more specific actions that need to be taken in this area.

> *The recommendations in Section 4 aim to improve the management of risk. They include measures to ensure the skills and mechanisms needed are in place.*

11. Managing risk is easier if ambitious and complex programmes are broken up into sections that can be delivered independently.

> *The recommendations in Section 5 address modular and incremental approaches to implementing IT-related change. They include introducing a presumption in favour of such approaches and supporting guidance.*

12. Improving project management and the handling of risk will increase the success rate of change projects and programmes. However, it is only possible to be sure that change has worked if we can measure the delivery of the benefits it is supposed to bring.

> *The recommendations in Section 6 aim to improve the measurement and realisation of benefits. They include reinforcing systems for monitoring benefits and greater sharing of experience.*

13. The Government's radical change agenda cannot be delivered by the public sector alone. Suppliers have a major role to play, and implementing an improved approach will be impossible if relationships with suppliers are poor or procurement is badly done.

> *The recommendations in Section 7 aim to establish improved interactions between Government and its suppliers. They include taking a more strategic approach to suppliers, addressing problems with current guidance and setting out actions suppliers need to take.*

14. The recommendations in Sections 1 to 7 set out much of what needs to be done to improve performance. However, there are other things that must be added to support their implementation.

15. First, the context for implementing IT is changing. The *Modernising Government* agenda calls for much greater working across traditional departmental boundaries. Frequently such new approaches will demand the use of IT. The recommendations made in this report apply to cross-cutting programmes as much as to others but there are some specific additional points that must be made.

> *The recommendations in Section 8 aim to ensure that all our recommendations are applied appropriately to cross-cutting initiatives. In particular, they look to establish clear responsibility.*

16. Second, the right skills are needed to implement all of the steps described, from analysing a business and changes to it, to forging effective relationships with suppliers.

> *The recommendations in Section 9 aim to provide the skills needed to deliver improvements in the handling of IT-related change. They include developing, implementing and monitoring a framework for the skills we need and make links to other work on Civil Service Reform.*

17. Finally, the IT environment and Government's needs are subjected to constant change. Government needs a constant process of learning and evaluation; otherwise an improvement over the long term will be impossible to achieve.

> *The recommendations in Section 10 aim to establish lesson learning and the sharing of experience. They include a system of peer review and requirements and mechanisms for obtaining and sharing good practice.*

Implementation

18. Many of the reasons why IT-related change has frequently failed have been known for some time. However, translating that knowledge into practice is not easy. What this report does is to make specific recommendations for how Government will achieve improvement and states how those recommendations will be put into practice.

> *Section 11, Implementation, sets out all the recommendations. It also sets out who has to take action, and by what date, to implement them. The recommendations are prioritised, so that those that will make the biggest difference on their own are put into practice first.*

19. It is vital that this review makes a real difference. To achieve this, Section 11:

- **sets out ways of making sure our recommendations are put into practice; and**
- **invests ownership of the report in the e-envoy, who will hold overall responsibility for its implementation and will report to the e-government Minister on progress.**

What is a project or a programme?

This report is about improving the way we handle projects and programmes. In order to be clear about what our recommendations apply to, we have set out here a description of the terms.

The key defining factor of a **project** is that it aims to achieve a unique outcome, unlike other types of work that are essentially repetitive processes. For example, processing a tax return is not a project because the work is identical to processing any other tax return. In contrast, introducing a new system for processing tax returns is a project because, once it has been done, the task does not need to be repeated (until another, different, system is introduced in several years time).

A **programme** is a portfolio of projects that aims to achieve a strategic goal of the organisation, planned and managed in a co-ordinated way.

The recommendations of this report apply to projects or programmes (as specified) that have a significant IT component. By this we mean that IT is a necessary part of delivering at least some of the benefits for which the project or programme is being undertaken. They apply equally to traditional types of project and the more innovative models that will be brought forward under the e-government Strategy.

SECTION 1 – Business Change

Delivery of information technology (IT) projects must be set in the context of delivering wider business change.

In the past, the introduction of IT systems has been seen as an end in itself instead of being part of a wider process to meet departments' and agencies' overall business objectives.

Business development skills need to be strengthened to support the management of business change projects and to enable informed business decisions to be made both before initiation of a project and throughout its life.

Effective management of business change requires the production and maintenance of a business case for the total change, not just for the introduction of a new IT system.

Best practice standards and guidance will be provided from the Centre, to achieve greater consistency across Government in the application of this approach.

Business change context

1.1 IT projects often fail because they are not seen as a part of wider business change but as an end in themselves. In these cases, the acquisition of an IT system is considered to be all that is needed to deliver business objectives. But IT systems do not exist in isolation – they operate within organisations and have implications that may go far wider than anticipated.

> **Evidence**
> A utility company implemented a major customer-services and billing system without considering fully the impact on the people who would be supporting its development. At the same time, the company made a separate decision to outsource these people, thereby compounding its previous omission. The combined effect of these two decisions became a major issue for the project to overcome.[1]

> **Evidence**
> A government department implemented a project which fundamentally altered the way in which some staff would work. The level of change caused, and the adverse reaction from the staff, were not identified as significant factors to be managed within the project.[2]

1.2 As technological change accelerates and increases the range of tasks IT can support, and as departments and agencies increasingly work across old organisational boundaries, it becomes more important that IT is seen as an enabling feature of wider changes to an organisation's business. Without this broader focus, the potential impact of the introduction of an IT system on the business may not be fully recognised.

> **Evidence**
> A government agency developed a new system using leading-edge technology but failed to implement it within the context of its existing IT. So many changes were made to the existing system during the development of the new one that the two proved difficult to integrate.[3]

1.3 The public sector should view its implementation of IT within a broader picture. The Government's experience of handling the Millennium Bug through business continuity planning shows that, by applying a wider focus, the impact of change can be seen against an existing overall business continuity plan. This process can ensure that the plan and the new IT are compatible and help to ensure that continuation of service remains the top priority.

Business change

1.4 Departments and agencies conduct their business to meet specific objectives such as paying benefits, advising on policy or collecting revenue. New demands placed on them by legislation, technology, customer requirements and so on may change these objectives and departments and agencies will need to find new ways of doing business. This is what is meant by business change.

1.5 The need for business continuity can also drive change. In the case of the Year 2000 date-change problem, the objective of 'no material disruption to services' required changes to be made that yielded many additional benefits.

1.6 Business change is the mechanism by which departments and agencies respond to and anticipate changes in their environments. It is also an opportunity to bring in new ways of working that will deliver business objectives in a more efficient and effective way.

Management of business change

1.7 To identify the extent of the business change needed to meet new objectives, and to take advantage of the opportunities made available through new technology, the initiative for change needs to be considered in a wide business context. This includes aligning the initiative with relevant departmental strategies, analysing the business and technical options, and assessing their impact on the department's or agency's business processes, structures and staffing needs.

1.8 By understanding the business context, departments and agencies will have a much clearer view of the business need and the requirements for change before entering into the development phase of a project.

Evidence

In France, a report written by the Commisseriat of General Planning, examining the French Government's plans to turn its paper-based administration into a fully electronic system, revealed a serious mismatch between the organisation's processes and its use of IT.[4]

1.9 All IT-supported change projects must have a named Senior Responsible Owner (SRO), a role which is explained more fully in Section 2. The SRO will be responsible for ensuring that the project or programme meets its overall objectives. As part of this they must bring in awareness of all the aspects of the organisation that are being affected. Project management methods can provide the tools to deliver specific components of change, but other skills are required to manage the overall process.

"When senior managers recognise, collectively, that IT is embedded in business and organisational processes, that they are no longer managing the technology but rather the context of the technology, they can begin to design business through IT."
Shaping the Future, **PGW Keen, Harvard Business School Press, 1991.**

1.10 To produce an outline of all the business change planned, and to manage it through the life of the project or programme, departments and agencies will need business development skills. These are specific skills that can provide an understanding and analysis of all aspects of a business that are being affected by a change process and can manage the interaction between the business and IT processes.

Evidence

A review of the Government's handling of the Millennium Bug has concluded that one of the most valuable results of the Y2K programme was that it made people focus on the links between IT and the wider business and helped the public sector to develop the skills needed to analyse those links.[5]

Evidence

One department that has extensive experience in business development has formed a centre of expertise to provide the business analysis, design and assurance skills needed to support the management of change. These skills are used to develop the department's information system (IS)/IT strategies and to support project managers in their subsequent implementation of business change.[6]

Recommendation 1: Business development skills must be included as a key feature in the extended Skills For the Information Age (SFIA) framework to be developed by the Central IT Unit (CITU) supported by the Office of Government Commerce (OGC) and the Centre for Management and Policy Studies (CMPS). *(See Recommendation 25.)*

1.11 Some government departments, such as the Inland Revenue and the Employment Service, already have extensive experience in this area. The Government can use the experiences of these departments to make the process simpler for others that have yet to address the issue.

1.12 The peer review process recommended in Section 10 will also focus on business change. The reviews are designed to ensure application and communication of best practice and to inform the decisions made by OGC's new gateway process.

Recommendation 2: CITU (supported by OGC) will, by building on existing best practice and ensuring flexibility for different departments with different needs, involve departments in the provision of guidance and expertise to strengthen the application of the necessary business development skills across Government. *(See Recommendation 29.)*

The business case

1.13 Change is delivered through one or more programmes and projects. Each of these will have business objectives that, when delivered, will produce the change. These objectives need to be contained within a business case that will also identify the benefits to be realised from the planned business change and the necessary resources.

> *Evidence*
>
> A major oil company introduced an 'enterprise' software solution for its central finance function. It was subsequently proposed that this be widened to cover other central functions and separate business cases were prepared and accepted, including business impact, before use of the software was extended. The decision to prepare new cases helped deliver a successful project that took into account the wider context.[7]

1.14 The business case needs to be seen as a living document that will run for the lifetime of the project, not just as a mechanism to obtain funding. It is only by using the case as a tool for monitoring progress that it is possible to make sure the intended benefits of the project or programme are realised. (See Section 6 for more on the realisation of benefits.)

> *Evidence*
>
> A major project involving a number of public sector organisations did not establish a single, consolidated business case until late into development. Although benefits had been identified, they had not been validated against a joint agreement of the total change envisaged. When problems arose, therefore, their impact on the projected benefits could not be tracked against the original change planned and those benefits were quickly eroded.[8]

1.15 The business case should include an outline of the total business change, including the proposed IT support. By doing this, the scope of the impact on the business can be identified, allowing it to be placed not only in the context of this change but of all other change under way or planned for the future. It also allows for the full extent of the project to be defined, providing an agreed basis for change management, and facilitates the creation of initial plans that will confirm the feasibility of the initiative.

> **Evidence**
>
> An insurance company in the US conducted a 30-person project that took three years to complete, against an original estimate of one year. When it was finished, they found that the company had stopped selling the product more than a year before.[9]

1.16 The recommendations of this section that relate to business development skills provide the supporting skills and business knowledge necessary to produce a comprehensive business case.

Recommendation 3: Business cases must reflect all of the business change to be delivered. Practical guidance on the contents of such a business case will be provided by OGC using the draft business case model developed by the study team (Annex D). The model, available by August 2000, will be taken into account in the OGC audit of procurement guidance. *(See Recommendation 19.)*

SECTION 2 – Leadership and Responsibility

Effective business change programmes and projects require clear, active and visible leadership from the top.

In the past, some change programmes and projects have suffered from a lack of active ownership.

Overall responsibility for delivering the business objectives and benefits of any programme or project must be vested in a single, responsible and visible individual, the Senior Responsible Owner (SRO).

The practice of having SROs for projects and programmes must be embedded across Government through the use of appraisal and reward systems.

The Centre needs to provide and maintain information-sharing mechanisms and practical guidance for SROs on the nature of the role and the specific tasks involved.

Leadership from the top

2.1 At the highest level, strong leadership provides strategic direction for an organisation; it drives the business change that projects and programmes deliver. Top management in departments needs to send a clear signal that effective delivery of projects is central to meeting the organisation's overall objectives.

2.2 It is vital to raise awareness among Ministers and senior officials of the way that their leadership and decision-making affect the environment for project delivery, and the roles they play in individual projects and programmes. This includes their part in encouraging a culture of openness, so that potential difficulties are highlighted early and lessons learnt.

> **Evidence**
> A large, updated business system was delivered late. This was due, in part, to a high-level decision to implement the system on an extremely tight timescale in an attempt to meet a deadline in proposed legislation.[10]

Recommendation 4: Professional development events for Ministers and senior civil servants being organised by the Centre for Management and Policy Studies (CMPS) will include informing them of their role in, and responsibility for, major IT projects and programmes. These events will include joint seminars. CMPS will also explore the scope for running joint events with the IT industry. The first of the development events will take place in May 2000.

Active ownership for projects and programmes

2.3 Programmes and projects also require clear ownership and leadership at lower levels. It is generally recognised that delivering specific components of a change programme (e.g. new software or a training programme) requires each to have a project manager in the lead. However, our research has shown that a broader ownership role is needed at the level above this. One person must bring together and own all the components of the change to ensure business benefits are delivered as intended. This should be the same individual who owns the business change that is driving the IT solution, as they are the primary stakeholder for the project.

2.4 Ownership at this level is vital. It ensures that a variety of strategic functions are performed that often cannot be supplied or managed on a day-to-day basis by either the project manager or the most senior management.

2.5 There is clear evidence that some government organisations and private sector firms are much better than others at recognising and addressing the need for projects and programmes to have intelligent, active ownership from a single individual. There is also evidence that projects and programmes run into serious problems if there is no owner of the business process to perform this role. While having such an owner is not a guarantee of success, not having one dramatically increases the prospects of failure.

> *Evidence*
> A very large project central to the business of a number of public sector organisations, and justified on the basis of a shared business case, did not establish single ownership of the business case and project until two years after contract signing. By this time, much of the original value of the business case had been eroded. The lack of a single point with overall responsibility for the project caused difficulties from the beginning, as the different organisations had varying degrees of commitment to the project objectives. This became more apparent as the project progressed and the benefits eroded. Conflict management, prioritisation and resolution processes were also adversely affected.[11]

> *Evidence*
> Singapore has been successful with government IT projects; in most cases they are implemented on schedule and within budget. This success is attributed to three key factors in particular:
> - every project is sponsored by a senior manager, who is held accountable for the success of the project;
> - good project management processes and skills are available; and
> - project estimates, in terms of schedule, budget and manpower resources (both users and technical people), are realistic.[12]

How can Government ensure active ownership?

2.6 The overall responsibility for ensuring that a project or programme meets its objectives and delivers the projected benefits must rest with a single, identified individual if it is to succeed. This individual should ensure that the project or programme maintains its business focus, has clear authority and that the context,

including risks, is actively managed. The individual should be recognised as the owner throughout the organisation.

Recommendation 5: All IT-supported change projects or programmes must have a single, named SRO. This individual is responsible for ensuring that the project or programme meets its overall objectives and delivers its projected benefits.

The seniority of the SRO will depend on the size, complexity and associated risks of the work being undertaken but, in all cases, they must be the business sponsor of the change that is driving the IT development. This applies to individual projects and also groups of projects making up a programme.

> **_Evidence_**
>
> In implementing a resource accounting and budgeting system in the public sector, the senior official with responsibility for finance took an active hands-on approach, established a board for stakeholders and regularly briefed senior managers. Key decisions on implementation were referred to the departmental management board for approval. The project was delivered to time and within budget.[13]

What is the role of the SRO?

2.7 In summary, the SRO's role is to ensure that a project or programme is focused, throughout its lifecycle, on delivering its objectives and the projected benefits. The SRO will perform the following key, high-level functions:

- overseeing the development of the project brief and business case;
- ensuring that there is a coherent project organisation structure and logical plan(s);
- monitoring and controlling the progress of the project at a strategic level (at an operational level, this is the responsibility of a project manager);
- formally closing the project and ensuring that the lessons learnt from the project are documented within the end of project evaluation report;
- ensuring that the post-implementation review takes place, the output is forwarded to the appropriate stakeholders and the benefits have been realised; and
- referring serious problems upwards to top management and/or Ministers as necessary, in a timely manner.

2.8 In providing strategic direction for a project, the SRO needs to focus throughout on four main areas:

Business change: the SRO needs to ensure that the project or programme is focused throughout, from initial business case onwards, on delivering the projected benefits. This includes ensuring that the business case is reviewed continually and that any proposed changes of scope, cost or timescale are checked against their possible effects on the business case. As owner and end-user of the project, they should be in the best position to make judgements on this and have the primary interest in doing so.

Clear authority: the SRO is the key decision-maker for the project or programme, as it is their business need that should be driving it. They need to monitor and control its progress at the strategic level. There are many examples where 'multiple' or

'committee' ownership of a project has diluted accountability, diffused authority and led to slower, less responsive decision-making. To be effective, authority must rest, and be seen to rest, with one individual. Crucially, an SRO should be ready to recommend that a project be abandoned or changed fundamentally, if necessary.

Managing the context: although projects have a single business owner, the SRO, they usually have multiple stakeholders. The SRO needs to be assured that these stakeholders, which may include other business streams, senior managers and users, are engaged throughout the life of the change. The primary mechanism for doing this is the project or programme board, which the SRO should chair.

Risk: the SRO must assure themselves that a number of types of risk are being tracked and mitigated as effectively as possible. The mechanisms in place for monitoring and reporting risk will vary according to the size and complexity of the project or programme. They might range from use of a risk register to the appointment of a risk manager (see Section 4) who could report directly to the SRO. Clearly, the degree of delegation practised by an SRO will vary, but they must be able to assure themselves that the crucial issues are being addressed, for example through chairing the project board or developing strong mechanisms for reporting problems. The types of risk that must be tracked include:

- project risks, the tracking of which can act as a reality check for project managers dealing with them on a day-to-day basis;
- external risks, such as the impact of other projects, programmes or new or changing policy objectives; and
- generated risks, where the project itself poses a risk to the organisation's overall business objectives or to other projects or programmes delivering those objectives.

Roles and responsibilities of the SRO: support from the Centre

2.9 The roles and responsibilities of the SRO will be familiar to some in Government, although different terminology will be in use. However, there are areas where the role is not familiar or where there is scope for improvement in the way its functions and responsibilities are discharged. The role fits existing project management methodologies because the SRO, as owner of the business change, should be chair of the project (or programme) board. The diagrams at the close of this section illustrate how SROs fit within the PRINCE 2 project- and programme-management environments. The Office of Government Commerce (OGC) is preparing fuller guidance on how the SRO will integrate with PRINCE 2.

2.10 The Centre needs to provide a more detailed practical guide to the roles and responsibilities of the SRO, drawing on best practice in Government and the private sector. This will serve to familiarise managers with the functions of the SRO. The guidance must be updated regularly to ensure that lessons are learnt and continuous improvement is made, supplemented by opportunities for officials across Government to share experiences and techniques.

Recommendation 6: An interim checklist of the roles and responsibilities of the SRO will be made available to departments and agencies by June 2000. A fuller version will be issued by December 2000. The guidance will be regularly updated

and refined in the light of experience and supplemented by information-sharing processes, including forums and networks. This work will be led by OGC.

Identifying and supporting SROs

2.11 Identifying SROs for projects and programmes should not require structural change within departments or agencies. It is likely to be clear from the nature of the business change who the SRO should be. Where it is not, all stakeholders must agree who should take the role. A mechanism must be in place to charge the chosen individual with the role of SRO and ensure that they are given adequate assistance and incentives. It is therefore sensible to use existing objective-setting and appraisal systems to plan, recognise and reward the work of SROs.

2.12 Personal ownership is further encouraged by ensuring that the identity of the SRO is the same throughout the term of the project or changes only when a distinct phase has been completed.

Recommendation 7: An individual's responsibilities as an SRO must be explicitly included in their personal objectives. The SRO for a project or programme should remain in place throughout or change only when a distinct phase of benefit delivery has been completed. Departments and the Centre should take the need for continuity and previous experience into account when jobs are advertised and appointments made.

2.13 SROs report through their line management chain in the usual way and have the role built into their personal objectives. The existence of an SRO does not alter the ministerial or Accounting Officer responsibilities relating to Government or departmental or agency priorities and expenditure in any way.

> *Evidence*
> A number of private sector companies who have experienced unsuccessful projects believe they failed because:
> ● it was not clear where accountability lay at senior levels;
> ● owners were not active or did not understand their role; and
> ● ownership lay with more than one person or a 'committee'.[14]

Figure 1

This diagram shows how the role of the SRO fits into the PRINCE 2 project management structure.

Project Management Structure
Adapted from Managing Successful Projects with PRINCE 2 *(TSO 1999), Figure 4.2.*
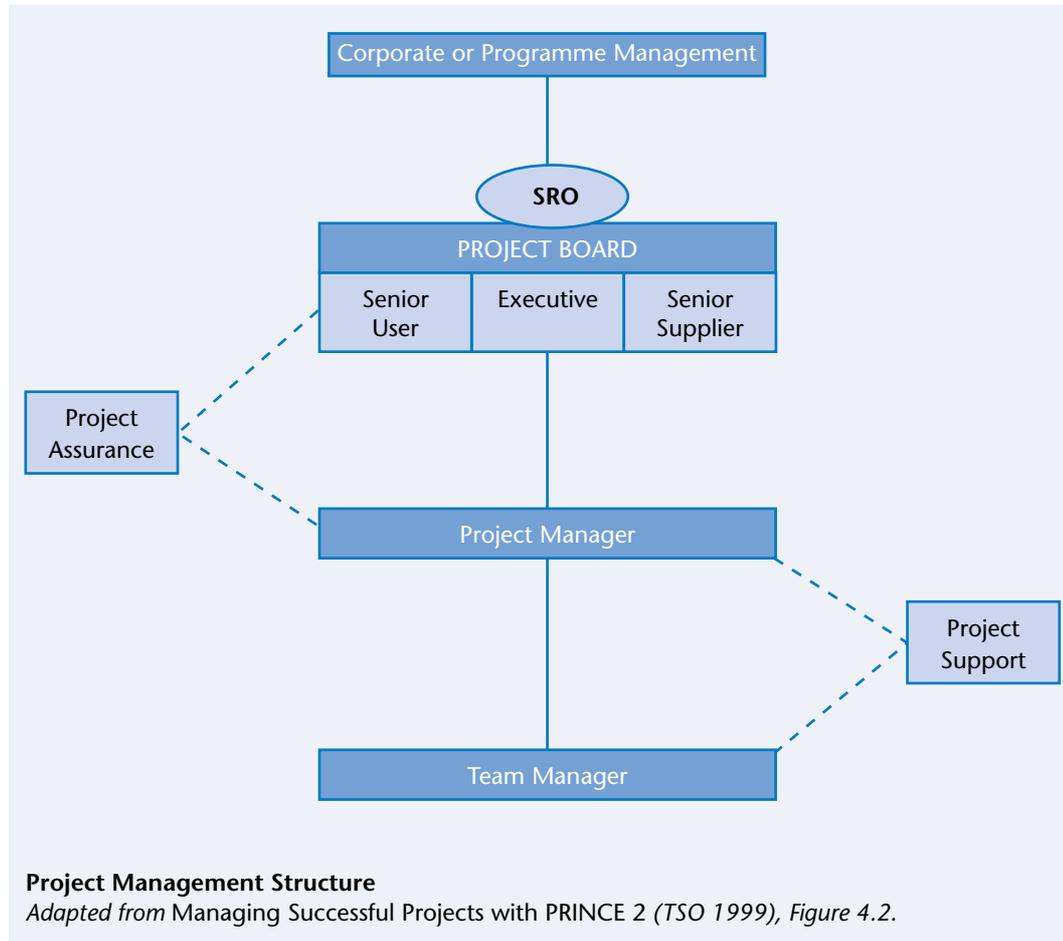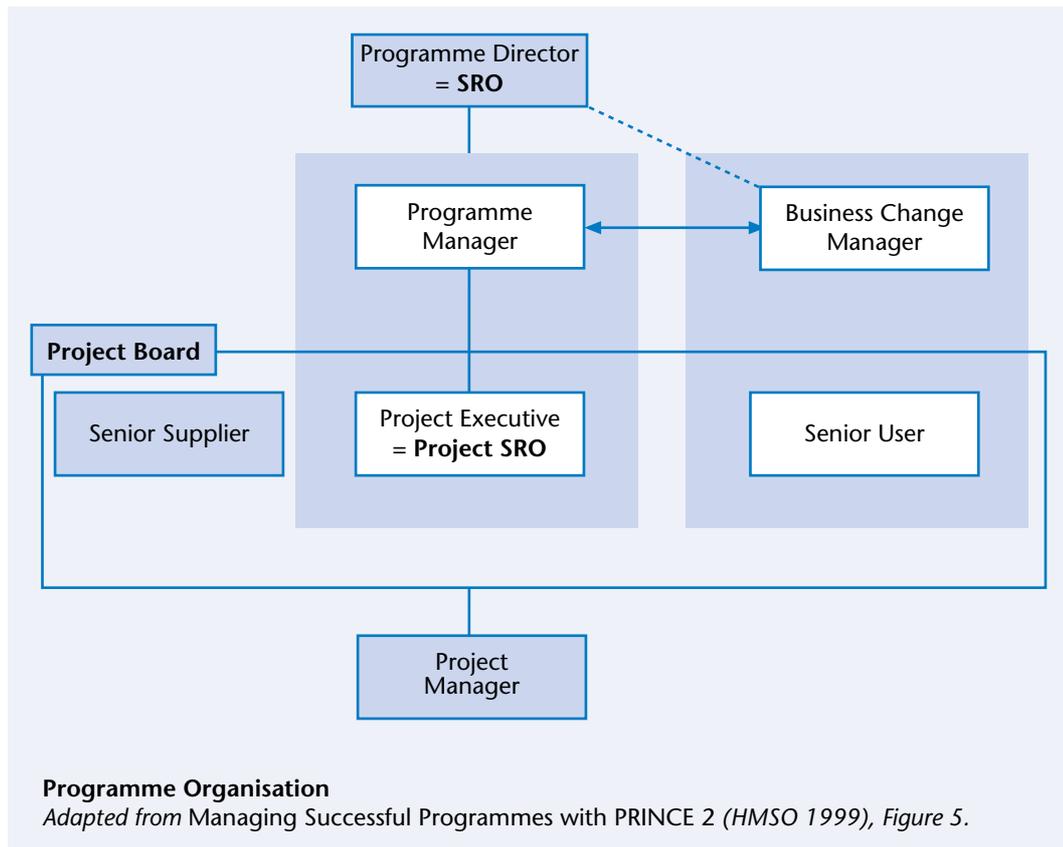
Figure 2

This diagram illustrates how SROs fit with the current Central Computer and Telecommunications Agency (CCTA) Programme Management Guidance, which complements PRINCE 2. Individual projects within a programme would have individual SROs. Although individual Business Change Managers may not all report in line management terms to the SRO, they are accountable for realising elements of the business benefit in their business areas, a process for which the SRO is ultimately responsible.

Programme Organisation
Adapted from Managing Successful Programmes with PRINCE 2 *(HMSO 1999), Figure 5.*

SECTION 3 – Project Management

Skill in policy or operational roles is no assurance of the ability to manage a project. Failure to recognise the need for specific skills results in ineffective project management and has been a contributing factor in the failure of a number of projects.

To improve Government's performance, we need mechanisms to harness and build on the limited experience available. One such mechanism will be the wider adoption of formal project management methodologies.

Key staff on major projects should undertake appropriate project management training and mentoring should be made available to project managers across Government.

Departments and agencies must assess the difficulty of their projects and match this against the abilities of their project managers. Where necessary, these abilities should be supplemented by managers from elsewhere in the public sector or from the private sector.

The critical role of project management

3.1 The characteristics that make successful project managers are not widely recognised in areas where projects are undertaken infrequently. As a result, many departments have allocated inexperienced, but often very competent, policy or operational managers to project management roles. The success of this approach has been mixed, but it is clear that ineffective project management has frequently been a major contributing factor in the failure of projects.

> *Evidence*
>
> One department appointed someone with no experience of project work to manage a very challenging project with a team of over 200 people. As this manager was unfamiliar with project issues, valuable time was lost when decisions were being made.[15]

3.2 The value of applied experience in the field of project management cannot be overstated. A successful project manager will have been battle-hardened on a succession of projects of varying complexity and will be attuned to recognise areas of concern. They will usually be able to make pragmatic use of a formal project management methodology and they will know what questions to ask to help them make an accurate assessment of the health of the project.

3.3 Despite the role of project management being critical to the successful delivery of the Government's change agenda, there is only limited recognition across Government for project managers as a profession. This anomaly has been acknowledged within the Civil Service Reform agenda, which recommends that the public sector "make more use of merit promotion in post to develop deeper expertise, for example in project management".

3.4 The improved focus on project management is welcome. Many of the people who have gained experience of this work move on to other jobs where their valuable skills are not used. Across Government, there is now a severe shortage of experienced project managers, particularly those capable of taking on some of the very ambitious projects that will be needed to achieve the improvements set out in the *Modernising Government* White Paper.

3.5 Our recommendations, therefore, focus on mechanisms to harness and build on the limited experience available in Government, help people to improve their project management abilities and identify where the abilities of a project's management team need to be supplemented.

Formal project management methodologies

3.6 A formal project management methodology provides a framework for managing a project. Although all projects are by their nature unique, they share common management issues and problems. Using a standard and tested approach to these common areas removes the need to reinvent specific approaches. Furthermore, there are some aspects of project work, such as risk management, that must be comprehensively addressed, regardless of the scale of the project. Doing this will be an integral part of any effective project management methodology and those key aspects are therefore less likely to be neglected.

3.7 The chosen methodology should address the project's organisation and management arrangements, approach to planning, reporting and controls, and the management of risk, quality, configurations and change.

Recommendation 8: The Senior Responsible Owner (SRO) of each project must ensure that a formal approach to project management, such as PRINCE 2, is applied.

3.8 Methodologies are often viewed as unnecessary processes that delay, rather than enhance, progress. This is most apparent on projects that are led by newly trained staff who do not have the experience to judge the appropriate level of adherence to the methodology. More experienced staff will apply the methodology to a level that is appropriate to the scale and complexity of the project, while maintaining a view of the wider strategic context in which it is being managed. They will take a pragmatic approach and may choose to omit or scale-down some activities. This is preferable to the unconscious omission of activities and is fully in line with advice from the authors of various methodologies. The PRINCE 2 manual, for example, states that:

> *"The way PRINCE is applied to each project will vary considerably, and tailoring the method to suit the circumstances of a particular project is critical to its successful use."*

> *PRINCE 2*, **p.9. TSO, 1998.**

> **Evidence**
>
> A project to deliver an application to a large number of users was developed by the IT supplier with negligible representation from the users. As the application was rolled-out, user hostility was such that the hoped-for benefits of the application did not materialise. The system did not meet the needs of its users. Effective adoption of a project management methodology would force a project to consider key stakeholders (such as staff) and their needs (such as training) in the project.[17]

3.9 To test the value of having adopted the formal PRINCE 2 approach to project management, one large department surveyed its project managers. Sixty-nine per cent of these managers *strongly* agreed with wanting to manage with PRINCE 2; they had found it very useful and believed it had helped their projects to succeed.

Project metrics and evaluation tools

3.10 There are a variety of systems available, sometimes referred to as 'metrics' tools, that measure the performance of a project. SROs and project managers should consider using these to help them assess the state of their projects. They range from simple measures of performance, such as 'traffic lights' (when aspects of the project are judged to be in a red, amber or green state), to sophisticated tools driven by empirical data that measure progress as it happens.

3.11 The following are example of metrics and measures that could be applied:

for software development

- rework rate on software modules completed;
- systematic capture of lessons learnt and application of the knowledge to future activities;
- tracking time spent on non-project related work;
- tracking lines of code generated in each module, or function point counts and requirements satisfied;
- tracking database calls made in each module, as well as estimated bandwidth required and throughput expected (important for performance tuning and resolving performance issues). Early prototypes can simulate loading factors and allow earlier attention to performance problems;
- tracking memory utilisation; and
- tracking sign-offs by internal clients as modules are declared complete.

for overall project status

- budget (actual against planned);
- deliverables against planned milestones;
- functionality delivered (on time and late);
- risk exposure (internal, external and residual risk);
- staff turnover (actual against planned and key staff retained); and
- overtime (actual against planned).

3.12 More comprehensive project evaluation tools that consider the whole organisation's ability to deliver projects are also available. Examples of these are the Capability Maturity Models (CMM) developed by SEI at Carnegie Mellon University, and the Software Program Managers Network (SPMN). Both are well established

and have been widely adopted by both private and public sector organisations. Governments have applied various models, tailored to their requirements, to provide metrics guidance on-line for their project managers. The overheads incurred by maintaining accurate and timely data must be taken into consideration when assessing the value of these tools.

Project management training

3.13 When staff are appointed to a project, there is a tendency for formal training to be overlooked, particularly when the timescales are challenging. As a result, much learning takes place on-the-job, which effectively means that staff are learning from their mistakes. We believe this process is an expensive alternative to formal training.

3.14 While training cannot take the place of experience, it can give inexperienced people grounding and essential knowledge to allow them to gather the maximum value from their time on a project.

3.15 Formal training on reputable project management methodologies is readily available in the marketplace, with several training providers able to offer a range of events appropriate to the different aspects of a project. The Centre for Management and Policy Studies is developing some generic project management courses appropriate to senior project staff. The training people may receive ranges from a half-day awareness event for project board members to a comprehensive programme for people who are taking on the management of a project for the first time.

> **Evidence**
> Assessing the effectiveness of its project boards, one department found that members had, in most cases, received no appropriate training and did not always understand their role on the board. As a consequence, the performance of these boards was inconsistent.[18]

3.16 Staff who choose project management as a career may seek formal qualifications. There are professional qualifications available through the Association for Project Management and the British Computer Society, as well as full academic courses.

3.17 To supplement training, less experienced managers can gain from those who have faced similar problems by taking part in a mentoring programme. Mentoring can take a number of forms: for example, it can be a one-off intervention or a lifelong relationship and it can work as an existing friendship or part of a highly structured support framework.

3.18 However the mentor and mentee choose to structure their relationship, it should provide opportunities for informal lessons and coaching as a supplement to training. Sharing experiences, providing specific advice and having someone to act as a sounding board for ideas can all help managers to become more effective.

3.19 Some departments and agencies already have mechanisms to facilitate project management mentoring. Where there are such mechanisms, or where current mentoring approaches within departments and agencies can be adapted to suit this purpose, project managers should be encouraged to make use of the facility. For those departments and agencies that do not have sufficient expertise available to make intra-departmental mentoring viable, a central group is necessary. The Office

of Government Commerce (OGC) will develop and maintain a list of potential project management mentors and act as a clearing house for requests and nominations for mentoring.

Recommendation 9: Key staff on major projects must undertake formal project management training appropriate to their role in the project, and mentoring should be made available to all project managers across Government through mechanisms put in place by OGC from December 2000.

Assessing the difficulty of projects and matching them to project managers

3.20 It is inevitable that some projects will be more difficult than others. Any number of issues, such as scale, new technology or uncertainties arising from external factors, can make an otherwise straightforward project into an exacting challenge.

3.21 Each project must be within the capability of its management team but, without an appropriate mechanism, SROs will not be equipped to assess the difficulty of the project in the context of the abilities of the management team.

3.22 We propose that all major projects must be assessed using the Project Profile Model, as outlined at Annex C, to inform the board of their inherent difficulty. Any project scoring higher than 40 will be challenging and will require very high-calibre project management to achieve successful delivery.

3.23 To assess the ability of the management team, three characteristics should be used:

- experience – the application of knowledge in 'real life' project environments. This builds the instincts that help to ensure success;
- knowledge – the tools and techniques of project management. This will include knowledge of the chosen project management methodology and generic techniques such as risk management; and
- personal skills – person-management skills and characteristics like stamina, focus and determination. (We make further recommendations relating to skills in Section 9.)

3.24 Where the analysis of a management team identifies a shortfall in ability, it should be addressed through development activities such as training or by supplementing, or even replacing, key individuals with people from either the public or private sectors. Departments or agencies should ensure that their highest-priority, most challenging projects are led by their most capable project managers.

Recommendation 10: Departments and agencies must assess the difficulty of their projects, using the Project Profile Model, and match this against the abilities of their project management.

Evidence
One department, having failed in an earlier re-engineering project, recruited an experienced private sector project manager to lead their next attempt. This manager recognised a number of skills gaps within the team and brought in additional people to fill them. The revised project is now on target to achieve its objectives.[19]

SECTION 4 – Risk Management

An appreciation of business risk management at all levels in an organisation will help to ensure that the impact of a project is fully understood and monitored throughout its life.

The process of risk analysis and management is covered in existing guidelines but the extent to which these are followed varies considerably.

To ensure risk management is effective, procedures designed to improve reporting and the upward referral of problems are needed.

More effective risk management will enable departments and agencies to undertake the increasingly complex and cross-cutting projects that are demanded by the Modernising Government *agenda.*

Current quality of risk management

4.1 Our review of projects has shown that the quality of risk management varies widely across Government. Its application ranges from simple lists (without ownership of risks or actions to mitigate them), to the allocation of full-time risk managers with comprehensive risk registers. Some of the reasons for poor risk management include:

- having a narrow focus looking only at the inward-facing project risks that are tangible and within the project manager's control, without considering risks to the organisation's business as a whole;
- relying too much on tabulating numerous risks in a register without prioritising them or considering the extent to which they may be correlated with each other;
- failing to understand that the ultimate risks of not meeting the business objectives or realising the business benefits, or ending up with an unsatisfactory delivery of services to the public, cannot be transferred to a partner or supplier;
- failing to understand or define the boundary between the responsibilities of the supplier and the purchasing department or agency;
- depending on the contract or its penalty clauses to mitigate risk rather than taking action or forming effective contingency plans; and
- failing to monitor the effectiveness of mitigating action and contingency plans or to refer risks, which fall outside of tolerance, to the appropriate level in good time.

Evidence
A major government project conducted risk analysis and management during an early stage of the procurement process. Where risks were allocated to the supplier, including risks to service, no consideration was given to the business implications of the supplier failing to manage the risk. The project relied heavily on the contract and penalty clauses that prevented the supplier from recovering costs if service was impaired, rather than taking effective mitigating action to reduce the risk to service.[20]

> **Evidence**
>
> A major government project experienced an adverse reaction from end users because the development phase, despite having taken longer than planned, had still been rushed and had failed to take their needs into account. The risks to the project had been captured in a detailed register but effective mitigating action was not taken quickly enough to resolve the problems.[21]

4.2 The processes of risk analysis and management carried out by a project manager or a dedicated risk manager are covered in existing guidelines. The Central Computer and Telecommunications Agency (CCTA) is currently reviewing its guidelines for consistency and completeness. HM Treasury has also updated the Private Finance Initiative (PFI) guidelines to take account of lessons learnt from past deals and to include an increased emphasis on risk management and the introduction of pre-contract risk reviews for major IT PFI contracts.

4.3 The guidelines emphasise the need for risk analysis to identify all risks, the likely impact on the project and the probability of the impact occurring. The combination of impact and probability should then be compared against the project's tolerance for cost, time and functionality. For all risks that fall outside the project's tolerance, either mitigating or contingency actions (or, particularly for high-impact risks, both) must be identified. In the case of mitigating actions these must be included in the project plan and monitored in the normal way. In the case of contingency actions, testing to ensure the feasibility of the contingency action must be included in the project plan and, in addition, the resources to provide the contingency must be reserved.

4.4 However, the fact that problems remain shows that the existing guidance is not adequate to ensure good risk management.

Business change

4.5 A key message of this review (as outlined in Section 1) is that any assessment of IT projects must focus on the whole business change as well as the IT element. The business case must encompass an early understanding of the wider risks that are associated with the business change. The Senior Responsible Owner (SRO) (see Section 2) provides a single point of responsibility for monitoring the impact of the project on the organisation and identifying external factors that may have an impact on the project.

4.6 As increasingly challenging projects are undertaken across Government, they must be supported at the highest level by an awareness of the importance of business risk management. The development seminars aimed at Ministers and senior officials, recommended in Section 2, will help to realise this.

4.7 An ongoing National Audit Office (NAO) initiative on business risk is reviewing the current attitude to risk across Government. By focusing on culture, process and structure, NAO aims to encourage "well thought through innovation and risk taking". Departments and agencies may be able to look to their own internal audit teams to help implement these changes.

4.8 HM Treasury reviewed the need for guidance on business risk management as a result of an action from the *Modernising Government* plan and has issued a consultation draft document, *Management of Risk – A Strategic Overview*.

4.9 The NAO and HM Treasury initiatives need to be taken into account by the Centre in taking forward the recommendations in this report.

Problem reporting and upward referral

4.10 There is a missing link between the effective analysis and management of risk, which are covered in the existing guidelines, and the assessment of business risks to the organisation, which is addressed by other recommendations in this report. It is vital that difficulties with a project are raised to the appropriate level as soon as possible. What is needed to achieve this is a method to facilitate the appropriate reporting and upward referral of problems. Such a mechanism could ensure that action is taken when necessary without inundating senior management with detail.

4.11 There are a number of existing approaches that could address this problem. The PRINCE 2 methodology suggests the use of a project-assurance function, responsible for monitoring all aspects of a project's performance and products, independent of the project manager. PRINCE 2 and other methods set tolerance levels for cost, time and functionality at the start of the project, beyond which the project manager cannot go without seeking approval. Software-based tools are also available. However, our review has identified that practices such as these are rarely applied and this failure has been the cause of many of the difficulties discussed in this report.

> **Evidence**
>
> A government project adopted a formal risk management approach but with little visibility or appreciation of the risks to the organisation outside the project. However, learning from past experience, this project has now introduced a series of risk reporting channels running from the project manager to the board and an executive sub-committee tasked with reviewing progress. A channel also exists between an independent consultant and the board, resulting in an increased visibility of risk.[22]
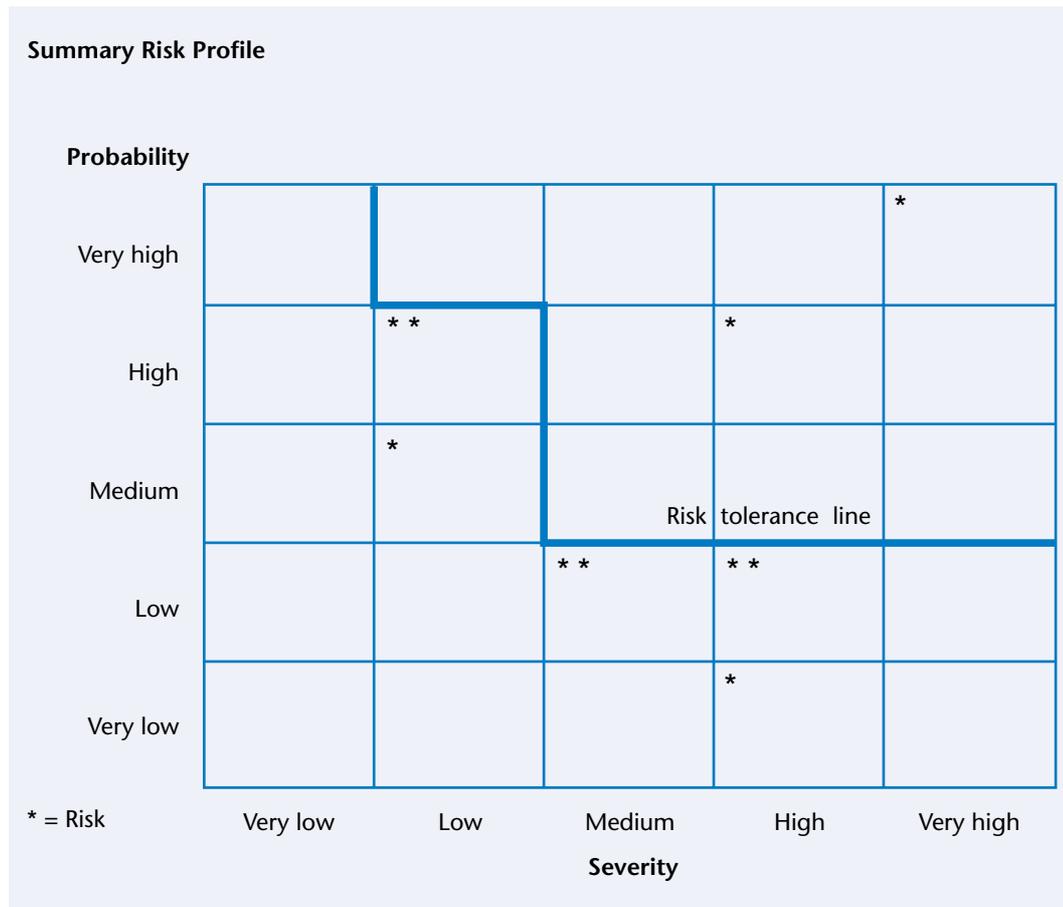
> **Evidence**
>
> A US Government department uses a spreadsheet to record details about the progress, cost, time and risks of projects. This information is summarised in a one-page 'control panel', which effectively shows progress and problem areas at a glance.[23]

Summary risk profile

4.12 The diagram opposite (Figure 3) shows an example of a simple mechanism to increase visibility of risks. It is a graphical representation of information normally found on existing risk registers. The project manager or risk manager would update this diagram in line with the risk register on a regular basis and provide this to the SRO.

4.13 Figure 3 shows risks in terms of probability and severity with the effects of mitigating action taken into account. The line represents a set level of tolerance below which the risks are regarded as being effectively managed. Attention is drawn to those above the line, which require immediate action, enabling the SRO to target action and seek clarification of what is being done to address the risks.

Figure 3

Summary Risk Profile

Probability

	Very low	Low	Medium	High	Very high
Very high					*
High		* *		*	
Medium		*		Risk tolerance line	
Low			* *	* *	
Very low				*	

* = Risk

Severity

4.14 In the longer term, further investigation is required to determine whether a spreadsheet, such as the one used by the US Government, would be useful in the UK. It should be possible to avoid introducing additional mechanisms by choosing measurement criteria based on the Project Profile Model (see Annex C). The project manager assisted by a project assurance function would be responsible for updating the spreadsheet throughout the life of the project. The criteria selected for the spreadsheet would be flexible enough to apply to projects with varying size and complexity.

4.15 A model and the existing guidelines must be followed by all projects and it will be the responsibility of the SRO to ensure that this happens. This function of the SRO role will feature in the peer review process.

Recommendation 11: Taking into account the NAO and HM Treasury initiatives already under way, the Office of Government Commerce (OGC) will investigate further methods of problem reporting and upward referral. These will be based on the Project Profile Model and incorporate the Summary Risk Profile. OGC will bring forward a flexible method that can be modified according to the complexity of each project. Supported by clear guidelines for project managers and peer review teams, the model will be available by December 2000.

SECTION 5 – Modular and Incremental Development

Large, ambitious projects carry a high risk of failing to meet some, or all, of their goals.

Governments in the UK and abroad and the private sector have recognised that an effective way to reduce risk is to break large projects into smaller, more manageable components.

We have produced some preliminary guidelines on modular and incremental approaches to IT delivery for departments and agencies to consider when taking on large projects.

Departments and agencies must consider the subject explicitly and must document their chosen approach before initiating large projects.

Making large projects more manageable

5.1 Our findings have confirmed research conducted by several organisations, including Manchester University and the Gartner Group. They found that projects attempting to achieve large-scale change all at once have a much lower probability of success than those working in a series of small steps. The finding is consistent across UK and international projects, in both the public and private sectors.

> **Evidence**
> One US state wasted $250 million on failed software projects because they were over-ambitious. A subsequent report said that, in future, the state must break projects down into elements of a workable size.[24]

5.2 If a large programme of work is broken down into smaller components, or modules, the subsequent delivery of these smaller components will:

- be easier to manage and specify;
- be simpler to implement;
- offer more options for contingency;
- be more likely to accommodate changes in technology, or in the political or financial environment; and
- offer more decision points to allow greater control of the work.

5.3 These factors make each component more likely to succeed. As a result, there is more chance that the overall objectives of the whole change programme will be met than would be the case if a monolithic approach was taken.

> **Evidence**
>
> A large insurance company undertook a project in which the staffing grew to such an extent that the management overheads were not worthwhile and communication became difficult. The company now insists that senior management can see 'both ends of the tunnel' at all times. This is achieved by making all projects modular, for example, letting them run for no more than 18 months and involving no more than 50 staff.[25]

5.4 It is recognised that taking on a modular or incremental approach to development can be difficult; to help project designers who are not familiar with this approach, we have provided some guidance at Annex E. This will be developed further by the Office of Government Commerce (OGC).

> **Evidence**
>
> Following a series of high-profile failures of large IT projects in the US, the President signed the 1996 IT Management Reform Act. This requires agencies to use modular contracting for acquisition of major systems of IT, to the maximum extent practicable. To ensure that they use this approach successfully, a central group has provided some detailed guidance for agencies.

Two-dimensional projects

5.5 There are two significant dimensions to large IT-enabled business change projects. These are the range of business functions that they support, and the level of support that they offer to business processes. Each of these two dimensions offers a way in which the work can be broken into more manageable components; one using a modular approach, the other an incremental approach.

The modular approach

5.6 A module is a distinct part of a programme of work that offers some value to the organisation, even if the other parts of the programme are not completed.

5.7 As an example, one could consider the Microsoft Office suite to comprise a number of modules, including Word, Excel and PowerPoint. Each of these modules has some value in its own right, but several modules are needed to meet the overall requirements of most business areas.

5.8 In a modular approach, the overall business requirement will be delivered by providing IT support in modules, each underpinning a limited set of business processes.

The incremental approach

5.9 An incremental approach to development begins with a component of the overall system that is deliberately limited in functionality, then builds on that component to increase its value to the organisation.

5.10 Again using Microsoft Office as an example, one could consider the development of Word from its first release through to Word 97 to be part of the incremental development of that product. Microsoft did not attempt to build all the functionality of Word 97 into the first release of Word; they created a simple version with a usable set of facilities, which was then built on to create later versions.

> **Evidence**
>
> A government body has contracted with a single supplier for the installation and management of a desktop infrastructure under a Private Finance Initiative (PFI) arrangement. This is the first stage in what they intend to be a long-term relationship. From this initial work, they have withheld some of the funding, to be released when the supplier proposes IT-supported business process improvements. In this way, the supplier is encouraged to be innovative and is given an opportunity to understand the organisation better, helping it to form appropriate proposals. The government body is not obliged to adopt the supplier's proposals but any they do choose will have been separately negotiated and could be offered to an alternative supplier if value-for-money is in doubt.[26]

Using modular and incremental delivery to reduce risk

5.11 A project has a higher probability of success if, rather than aiming to supply the complete range of business support functions required, smaller projects are designed to deliver those strands that can be separated out into single modules. This does not mean that the detail of each module has to be determined at the start. What is needed is a clear overall goal and a mechanism for determining the content of each of the modules and how they will fit together.

5.12 If the IT support that is needed can be phased in, an incremental development approach can be taken, delivering increasing levels of support in a series of smaller, more manageable projects.

5.13 It is perfectly feasible, and advisable, to use both modular and incremental approaches. Combining the two limits the risks to the project and achieves support for a wider range of business functions. The disadvantage of this approach is that it can be more complicated to ensure that all parts of the system are technically compatible. The Central IT Unit (CITU) is currently developing guidance on ensuring systems can operate together. (See the Guidelines on Interoperability, at http://www.iagchampions.gov.uk/guidelines.html)

> **Evidence**
>
> A public sector project successfully used both modular and incremental approaches to implement a resource accounting system. The functionality was split into 'initial' (basic resource accounting) and 'additional', ensuring early implementation of a working system while allowing more time to get the additional functionality right. Eight Early Implementation (EI) sites were identified and proved useful in clarifying the implementation process and system sizing.[27]

5.14 Both modular and incremental approaches can be used with PFI, partnering and traditional procurement arrangements. There are some detailed factors to consider as part of the procurement exercise, which are addressed in the guidance at Annex E.

Piloting and phased roll-out

5.15 The principles of modular and incremental delivery can also be applied to implementation. While the approaches set out below may increase costs, the return in terms of risk reduction and prospects of success is often considerable.

5.16 Following development activity, it is useful to have a pilot stage to monitor usage of the system in a controlled environment over a limited period of time. During the pilot stage, the IT system is used in the form that is proposed for live running, allowing the integration of the system with the business process, and the implementation and training approaches, to be effectively tested. This may take place in a single office, or part of an office, chosen to be as representative as possible of the rest of the organisation. The system may be piloted either on real work or in a test environment before being rolled out to the rest of the organisation.

5.17 A piloted system can be rolled out in phases. This allows changes to be made to reflect the experiences of small groups of users, which will also increase the eventual acceptance of the system by its users. To gain the maximum value from a phased roll-out, some breathing space should be built into the plan to allow the lessons learnt from early implementations to be incorporated into later ones.

Purchase of preparatory work

5.18 During the pre-contract phase, one process that can help to firm up requirements is the use of prototypes. As this term is used to describe two different concepts, it is important to clarify the purpose of the prototype. Most are throwaway systems that are built as cheaply as possible to help to clarify requirements or prove a concept. Due to the short-term nature of these prototypes, they are unlikely to be suitable for procurement under a PFI arrangement.

5.19 When the requirements are clear, the second type of prototype is used to demonstrate that the supplier can build the specified product. This is a proof-of-concept exercise and, following evaluation, the prototype is likely to form the basis of the final product.

> *Evidence*
>
> One UK government agency has shortlisted three suppliers for a project. It has agreed a contract with each supplier to report on their proposed:
> - business process design;
> - implementation plan;
> - service description; and
> - technical interface design with other linked developments.
>
> These reports will help to confirm each supplier's understanding of the requirements and allow the agency to assess the viability of their proposals. The study results will form part of the main agreement with the chosen supplier, under a conventional PFI arrangement.
>
> To encourage the bidders to follow this approach, each has been paid £100,000 from the agency's own funds. The agency views this as an acceptable price for the risk reduction it offers.[28]

Recommendation 12: Departments and agencies must adopt a modular and/or incremental approach to projects, unless there are very strong reasons for not doing so. The approach to be taken must be clearly documented before large projects are initiated and must explicitly consider the capabilities of the organisation and its supplier(s) and the size of each proposed increment.

Recommendation 13: OGC must refine and expand on the preliminary guidance issued by the Major IT Projects Review team (Annex E) to provide more advice to help project planners determine their approach to modular and incremental developments. This guidance should be completed by December 2000.

SECTION 6 – Benefit Realisation

Projects and programmes can only be regarded as successful if the intended benefits are realised.

There have been weaknesses in the systems used for ensuring that benefits are tracked and ultimately delivered.

Departments and agencies must include formal processes to determine the benefits of projects and review the progress towards their realisation.

The Centre needs to collect and maintain information on the type of benefits realised from specific projects and programmes and share this information across Government.

Benefits realisation

6.1 A project or programme is only successful if it delivers the benefits for which it was initiated. A crucial component of any project is the continual monitoring and reporting of progress towards realising benefits. This ensures that the objectives outlined in the original business case, and used to justify the investment, are reviewed at key points during development and implementation to check that they remain valid. It also maintains a focus on the business reasons for conducting the change and on the effective management of risk. It should be recognised that the benefits that attract investment are not always savings; improved services are an equally valid justification.

6.2 Many methodologies point to post-implementation reviews (PIRs) as the mechanism to report formally on outcomes against the business objectives and business case. (Note that in the event of legal disputes with a supplier, or a likelihood of such disputes, legal advice should be sought on the content of and approach to any PIR.)

6.3 Our review has identified that too few projects or programmes have been subjected to the necessary reviews or reporting of benefits realised. Even if projects have been completed on time and to budget, it has not been clear that they have delivered the expected returns. It is essential that some measure of success is agreed upon from the start but, in some cases, it is difficult to determine exactly how to weigh up the benefits. Programme planners need to focus on aspects that can be measured and do not depend on intangible external factors. For example, a large programme might seek to reduce the number of people unemployed. This benefit would clearly depend, at least in part, on economic factors outside the control of the programme. Another, measurable, benefit would have to be found, for example, the number of people finding job vacancies through a new system.

6.4 No central reporting or recording of benefits is undertaken. The Government as a whole is unable to ensure that departments and agencies will be able to learn from past projects and programmes or take account of their successes and failures when embarking on new initiatives.

> **Evidence**
> Norway conducted a survey into the cost benefit analysis of IT projects across most of Government and found that only 16 per cent could document quantitative benefits from IT investments during the last four years.[29]

> **Evidence**
> A media company conducted a project for handling copyright that technically performed as expected but did not deliver the claimed benefits. The company has since focused on monitoring projects against the planned benefits at each stage before committing further resources.[30]

> **Evidence**
> A large government department found that PIRs were only carried out in a patchy and inadequate fashion. The department concluded that this hampered its ability to learn lessons from past projects and that stronger messages about the importance of such reviews were needed.[31]

6.5 Regular reviews of progress towards benefits have an advantage in that individuals know the claims they make about benefits will be monitored and they are therefore more likely to make realistic assessments before work commences.

Recommendation 14: All major projects or programmes must undertake periodic reviews of proposed benefits throughout development and implementation. The SRO is responsible for ensuring that this is done.

Recommendation 15: A post-implementation review must be undertaken of all projects or programmes and benefits realised assessed against projected benefits outlined in the original business case or subsequent amendments. These reports must be endorsed by the Senior Responsible Owner (SRO) and, for projects where their involvement is required, tabled with HM Treasury and the Office of Government Commerce (OGC).

6.6 Money for large projects or programmes is authorised by HM Treasury for the realisation of a specific set of benefits contained within a business case. Therefore, the Centre has a key role to play in monitoring the extent to which those benefits are, in fact, delivered. Although in the current system of extensive delegation of budgetary authority to departments HM Treasury does not review individual projects or programmes, it does have an important role in ensuring that effective systems are in place at a departmental level to capture the benefits and in being clear about what it expects in return for investment.

Recommendation 16: HM Treasury should review the systems departments and agencies have in place for monitoring the realisation of benefits and take these into account when considering proposals for major initiatives and investments. These reviews should be undertaken in parallel with the regular reviews of departmental investment strategies.

6.7 Making sure that projects and programmes deliver the expected benefits is not easy. Many of the risks faced, and the techniques for handling them, are common to all projects and programmes, irrespective of their aims. Therefore, we believe it would be valuable for experiences of benefit realisation to be shared.

Evidence

A major petrochemical firm conducts reviews at senior level of the effectiveness of major projects authorised at that level. These reviews examine whether benefits have been realised. The organisation has found that, by bringing thinking on benefits together at a senior level, experiences and knowledge of what delivers results, and how that is done, is disseminated effectively.[32]

Recommendation 17: OGC should review the results of PIRs and ensure that valuable common information, such as trends in areas of successful or difficult realisation, is widely available. The work is to be ongoing, but should start by September 2000.

Recommendation 18: OGC, in consultation with CITU, should examine what additional measures and guidance need to be established to ensure Government maximises benefits from its investments in technology. This work is to be complete by December 2000.

SECTION 7 – Procurement and Supplier Relationships

Increased dependence on IT to help deliver business objectives raises the importance of effective IT procurement.

Clearer articulation of Government IT procurement policy will improve relations between the Government and its suppliers and improve the success rate of projects.

Mechanisms that encourage more mature co-operation between client and supplier can have a significant impact on project success.

Scrutiny of supplier plans throughout the procurement process is important in ensuring that objectives are delivered. There are key actions that must be taken by suppliers to help improve performance.

Actively managing market intelligence across Government can help improve procurement decisions.

Definition of procurement

7.1 Our recommendations are based on the Gershon Report's[60] wide definition of procurement as involving "the whole process from identifying a business need to fulfilment of contract". Seen in this context, procurement draws in all the activities around the ongoing management of a contract throughout its life and the development of long-term relationships with suppliers, as opposed to just the formal processes of arriving at a contract.

7.2 We have grouped together our work on procurement and ongoing relationships with suppliers, as the two are inextricably linked. Good or bad experience in one area will invariably influence performance in the other.

Procurement policy and IT

7.3 Government has become increasingly reliant on the private sector for much of its IT capability. Procuring IT has therefore become an increasingly significant activity for departments and agencies, and the demands of the *Modernising Government* agenda mean that it will continue to be so.

7.4 The wide range of procurement options that are available, and the complex ways in which they may be applied to IT, have led to a lack of clarity about how Government procurement policy supports departments, agencies and IT suppliers, and an inconsistent application of recommended best practice across Government. There are several issues here:

- keeping policy and guidance up to date and consistent;
- re-focusing existing policy and guidance to reflect changing business needs;

- understanding the implications of procurement policy for IT;
- improving access to policy and guidance material; and
- improving compliance with best practice guidance.

Keeping policy and guidance up to date and consistent

7.5 The speed of change in technology, and the growing variety of ways in which it is used across Government, has made it difficult for procurement policy to keep pace and to respond quickly to experience on the ground.

7.6 The Government's policy is to ensure value for money in procurement through competition. Over the last 10 to 15 years it has applied a number of procurement approaches to achieve this, and these continue to evolve in the light of experience. Recently, for example, the Better Quality Services initiative has re-positioned some elements of policy, highlighting the need for departments and agencies to take a pragmatic approach and to consider a range of procurement options. In this climate of change, policy and guidance need to be regularly reviewed and consolidated, to ensure that they are still consistent, current and applicable.

> *Evidence*
> Current guidance includes the Central Unit on Procurement series, produced by HM Treasury, which comprises nearly 50 separate sets of notes on a wide range of topics. Examples include ethics in procurement, model forms of contract, the competitive tendering process and incentivisation. Some date back nearly 14 years.[33]

> *Evidence*
> The Central Computer and Telecommunications Agency (CCTA) provides a number of model agreements and IT-specific guidance, principally through their *Total Acquisition Process* (TAP) guide and, more recently, their *IS Management Guide to Acquisition*. Both these guides contain much valuable advice and information but their visibility is limited.[34]

Re-focusing policy and guidance to reflect business needs

7.7 Many departments and agencies have also expressed concern that, in negotiations with IT suppliers, particularly under the Private Finance Initiative (PFI), current policy and guidance place too much emphasis on financial aspects at the expense of business considerations about the quality of new and existing services. Important questions, for example, on contingency planning, supplier capability and recent performance, and the integration of technology with business processes, have at times been overlooked in the pursuit of a financial deal.

> *Evidence*
> A project to alter radically the whole working practices of a government body, employing extensive new technology, focused too heavily on the commercial aspects of the agreement with their supplier. While the contract seemed to offer excellent value for money, the project fell into difficulties because technical and management issues led to severe delays. The good commercial deal was not a substitute for satisfactory service.[35]

Understanding the IT implications of procurement policy

7.8 Although there are clearly aspects of procurement that apply in equal measure to any large purchase, we have found cases where insufficient weight has been given to the unique characteristics of IT. Written policy guidance in this area is only now being worked up.

7.9 We have seen a variety of IT procurement approaches used across Government to satisfy a diversity of requirements. These include, for example:

- joint ventures;
- strategic outsourcing;
- framework contracts (such as GCat and SCat); and
- PFI.

There is confusion, however, about how best to match the approach to the requirements and there are examples of projects where the selected approach, and the lack of familiarity with it, have hampered chances of success. The PFI approach, for example, which has been successfully applied in the construction industry, often works less effectively for IT. This is largely because the desired outcomes of IT projects are more difficult to articulate and agree and often involve significant issues at implementation of integrating new systems with business processes and existing systems.

7.10 The Centre needs to ensure that there is a coherent and up-to-date statement of procurement policy as it affects IT. This needs to draw out the range of procurement options available, supported by advice on when particular options should be employed.

> **Evidence**
>
> The HM Treasury document *Procurement Policy Guidelines*, issued in November 1998, provides a Senior Management Summary of Government Procurement Policy but does not refer specifically to IT.
>
> More recently the Treasury Task Force has produced guidance on PFI contracts for IT (*Standardisation of PFI Contracts – Information Technology*, published on 28 March 2000). While this offers extensive help for departments pursuing a PFI approach, it does not cover the reasons for choosing different methods of procurement.

Improving access to policy and guidance material

7.11 Through their network of relationships with departments, agencies, the IT industry and other organisations, CCTA has gathered a broad range of pertinent information, for example, on:

- current use of GCat and Scat;
- IT supplier performance on projects;
- impact of policy changes on departments' IT processes;
- IT skills shortages and availability; and
- IT training and development options.

This information, however, is not widely visible at present and is not always used to best advantage. The Government needs to find better ways of communicating it across departments and agencies and it needs to be kept up to date and made readily accessible to project teams and other Government stakeholders.

7.12 The current funding arrangements for CCTA require that they charge for many of the guidance materials and support services they offer departments and agencies. Although the total value may be relatively small, for example when compared against departments' total IT spend, the principle of charging is counter-productive in that it discourages organisations from making best use of available information.

7.13 CCTA's future status and relationship with the Office of Government Commerce (OGC) will be reviewed during OGC's first year of operation. This review offers an opportunity for Government to consider how to make best use of all the information that is currently available.

Improving compliance with best practice guidelines

7.14 There is concern that best practice guidance and recommended methodologies, processes and procedures, are often viewed as optional by departments and agencies. We recognise that central guidance and advice cannot be universally prescribed; there will always be circumstances in which departments need to apply their own alternatives but the onus should be on them to justify any non-standard approach. One way to achieve compliance would be for the Government to declare certain key processes and/or methods mandatory. Any department or agency choosing not to use these would then be required to justify their alternative approach.

7.15 Government needs to carry out an audit of existing policy and guidance on procurement and should produce a consolidated set of material for project management and the procurement of IT.

The audit should:

- take account of current HM Treasury and Cabinet Office published statements and CCTA guidance;
- withdraw material that is no longer in step;
- consider how best to communicate policy and guidance and make best use of electronic facilities; and
- identify new material that is needed (for example, to support the recommendations we make on business cases in Section 2).

The consolidated material should:

- identify the range of procurement options available;
- indicate the circumstances in which each option is appropriate (i.e. according to the nature of the IT requirement);
- address the distinction between long- and short-term requirements;
- provide signposts to appropriate guidance and legislation; and
- clearly identify processes that are viewed as mandatory across Government.

Recommendation 19: OGC should audit existing policy and guidance on procurement and produce a consolidated and unambiguous set of material for IT, making it clear which elements are mandatory. This should be made available on-line and at no cost to Government users. The work should be completed by October 2000.

Relationships between departments and suppliers

7.16 Procurers of successful projects, IT suppliers, management consultancies and academics all cite effective communication between client and supplier as a major factor in achieving success in the delivery of complex projects.

7.17 It is essential that departments and agencies take an active approach to project management and business continuity planning throughout the lifecycle of the project, irrespective of the type of procurement undertaken. It is evident that on some PFI and outsourcing contracts, departments and agencies have failed to recognise the need to maintain an active role after contracts are signed. All parties need to be clear about their responsibilities in relation to all the key activities at the outset and throughout the project.

> ### *Evidence*
> A large, business-critical system was procured using PFI. Failure at the outset by the purchaser and the supplier to agree roles and responsibilities, or a mutually acceptable management structure, hampered the progress of the project and caused serious diversion of management effort, with damaging consequences.[36]

7.18 There are several examples in Government where openness about problems has come about only when there is a serious crisis. Supplier and client have been forced to pull together to resolve issues and, even then, this may not have happened for some time. In instances like these, the relationship between supplier and client may become so strained that a deep mistrust will exist and litigation may be threatened or actually come about.

> ### *Evidence*
> A PFI contract encountered problems when poor technical work from a subcontractor was noted by the purchaser. However, the contractual relationship did not allow an open discussion of possible resolutions between all the parties involved, despite the critical importance of the problem to the project.[37]

7.19 One type of procurement arrangement that is increasingly common in Government is partnering, where a department or agency commits to a long-term relationship with a supplier for ongoing services and new development work.

Evidence

A central government agency has entered into a long-term partnering arrangement with a major supplier. Two aspects of the agreement overtly address the nature of the relationship between client and supplier from the outset:

- team-building events with suppliers and the agency have been arranged to accelerate their ability to work together; and
- the payment arrangement requires the supplier to propose IT-supported business process improvements. In this way, the supplier is encouraged to be innovative and is given an opportunity to understand the organisation better, helping them to form useful proposals.[38]

Evidence

A major partnership contract with one government department explicitly provides for mechanisms to allow the sharing of information: open book accounting, profit sharing and dispute resolution procedures. In addition to these contractually guaranteed mechanisms, conscious effort is put into maintaining a transparent and productive relationship. A senior official is assigned the specific role of relationship manager, with a brief to monitor the relationship, and the department has regular meetings with the supplier's board, for raising issues at the highest level.[39]

Evidence

In order to forge a long-term relationship, a utility company called on its consortium of three IT suppliers to reduce the utility's costs by 20 per cent per year for three years. The consortium would subsequently receive a half share of any further savings made by the utility.[40]

7.20 There are a number of mechanisms available that will facilitate communication and encourage co-operation between the procuring department or agency and their suppliers.

Mechanisms appropriate to all types of procurement

- Jointly agreed and documented change control processes, which focus on issues, impact assessment and reducing residual risks; ways of avoiding 'informal' changes that allow agreed control processes to be circumvented; and fast-track processes for identifying significant changes that need to be referred to, and approved by, senior management on both sides.
- Ways of sharing information in confidence, if a framework contract already exists, when innovative supplier solutions could bring mutual advantages.
- Tender evaluations that include a consideration of whether suppliers have a track record of openness.
- Ways of sharing contingency plans between suppliers and clients.
- Methods of ensuring that contractual commitments made at tendering stage regarding the specific skills and staff required are honoured when the project commences. Senior Responsible Owners (SROs) and supplier account managers, or their equivalents, should be responsible for overseeing these commitments and making sure that changes of key staff are not made without the consent of the other party.

Mechanisms to be considered for 'partnering' procurements

- The agreement of shared goals by top management in both the department or agency and the supplier organisation. The communication and understanding of these shared goals must go beyond their inclusion in contractual documents and be communicated to all involved in the delivery of subsequent projects.
- Producing a non-contractual 'charter' setting out agreed principles and signed jointly by top management of both organisations.
- Joint client/supplier team-building exercises, to be carried out at the earliest possible opportunity and at significant milestones throughout the project.
- Open-book accounting.
- Profit sharing.

Recommendation 20: Departments and agencies must ensure that they put in place processes that will actively encourage co-operation and an open dialogue between supplier and client. Projects already under way should immediately re-examine their communication mechanisms to ensure appropriate processes are in place.

Supplier plans

7.21   Once the procurement type has been established and the relationship between the client and supplier addressed, it is imperative to keep all parties to the project focused on ensuring that what is delivered meets the contracted specification (which covers the full needs of the business). We have already recommended that departments should require detailed plans from suppliers and validate these against their own plans before signing new contracts or awarding further work under existing contracts. This recommendation is important for ensuring that suppliers understand precisely what they are expected to deliver.

7.22 The application of this discipline at an early stage in the procurement process, combined with a follow-up peer review, as recommended in Section 10, will, over time, help departments to reduce the number of 'uncompetitive' procurements. This reduction will be achieved as a result of the increase in departments' willingness to take actions such as restarting a competition if they feel the requirements of a project will not be met.

7.23 The review of current projects undertaken during the course of this study has proved the value of subjecting suppliers' plans to ongoing examinations after contracts have been signed, in addition to applying pre-contract scrutiny.

> *Evidence*
> When examined during the course of this study, four central government projects, involving three departments, were shown to have solutions being developed that would not deliver the business benefits anticipated at the outset. In each case, had the suppliers' plans been examined and measured against the required business benefits at stages throughout the procurement lifecycle, the emergence of a significant gap would have been exposed.[41]

> **Evidence**
>
> Three major outsourcing projects examined in the course of this study had each agreed a number of set points in the procurement lifecycle when suppliers were required to produce plans for future stages of the development. The subsequent delivery of services was deemed to have been very successful in that they satisfied the agreed business requirements.[42]

7.24 Recommendation 21 extends our existing recommendation for the early examination of supplier plans to encompass the whole procurement process.

Recommendation 21:

PART 1: Before contracts are signed, suppliers must have produced a realistic plan, including timescales, resources and technology, for how they will deliver the outcomes being sought under the relationship. The same applies to evolutionary or modular phases within an existing contract. These supplier plans must be re-examined during the development stages of the project to ensure a close fit between business design, assurance and implementation intentions and the supplier activities concerned with developing the solution.

PART 2: Guidance for departments on how to evaluate such plans should be developed, initially by HM Treasury Taskforce and then by OGC.

Supplier bids

7.25 Our review encountered examples of underpriced or unrealistic bids from potential suppliers. In attempting to secure business in this way, suppliers have caused major problems for both themselves (low or negative profitability on delivery) and Government (poor service to the citizen). While the onus is always on Government to ensure that bids offer value for money and are realistic, it is ultimately in the supplier's best interest not to submit underpriced bids.

> **Evidence**
>
> The use of a fixed-price contract in one project meant that the requirement had to be reduced when the supplier's losses became too great. The price was shown to be far below actual cost. The supplier had also promised unrealistic target dates.[43]

Other concerns

7.26 During the course of our review, departments and agencies expressed a variety of concerns about IT suppliers' approach to Government projects. The most common criticisms made of suppliers were:

- fielding a highly-skilled team of IT practitioners during the tender evaluation process but substituting weaker personnel after the contract had been awarded;
- being over-reliant on internal funding for large contracts and failing to consider third-party funding;
- managing sub-contractors ineffectively;

- failing to recognise or fully understand the business need behind the IT change;
- responding slowly to emerging difficulties; and
- not communicating well.

Supplier actions

7.27 We believe IT suppliers must take the following actions if they are to improve the delivery of projects to Government:

- work with departments and agencies to ensure their proposed solutions meet business needs, not just technical or operational requirements;
- produce realistic plans, including financial, technical, personnel and communication plans, throughout the lifecycle of the procurement to ensure their activities continue to be in line with the business need;
- share information about problems at the earliest opportunity to ensure small issues do not escalate;
- agree processes at the start of the procurement that will actively encourage co-operation and an open dialogue between supplier and client; and
- ensure that they fully understand the requirements, their bids are realistically priced and the timescales they propose are achievable. (Government of course retains ultimate responsibility for assessment and acceptance of bids.)

The role of the Office of Government Commerce (OGC)

7.28 Although we have seen examples of some departments approaching others to learn from their IT procurement experience, this is generally done on an ad hoc basis and is therefore of limited value in the development of a pool of experience and knowledge across Government. The new OGC has a vital role to play in filling this vacuum and improving Government's strategic management of IT suppliers to promote better-informed procurement decisions. Central to this is the need to gather timely intelligence information and to make this available to departments and agencies. One of our early recommendations tasks the OGC with making IT suppliers its first priority. In Recommendation 22 we take this a step further by proposing that Government begin formally to gather and share supplier information.

Recommendation 22: OGC should continue to gather information about the top ten suppliers of IT to Government (by volume and value of business). The first set of intelligence data should be available by December 2000. The information gathered should include, for each supplier:

- **the range of IT services supplied (as defined in the Project Profile Model);**
- **their recent performance with Government; and**
- **in time, their ongoing performance against our recommendations.**

7.29 There is broad agreement that there are several other issues on which the OGC needs to take action. These are set out in paragraphs 7.30 to 7.32.

7.30 There is concern that some of the major suppliers in the industry are not active in the Government IT marketplace and that this has generated an over-reliance on the suppliers who are. Equally, there is evidence that Government is not making best

use of second-tier and small to medium-sized enterprises (SMEs), particularly in supporting smaller departments and agencies or providing innovative approaches.

7.31 Government needs to find ways to stimulate the technical innovation that will be needed to deliver the e-government Strategy and to consider the issues surrounding Intellectual Property Rights (IPRs) that could hinder its progress. Under some recent procurement contracts, IPRs for the software developed remain with the supplier and are licensed back to the department or agency (with a view to reducing overall cost to Government). However, this may not be the most cost-effective solution where subsequent changes of use are envisaged and this is increasingly likely to be the case as departments and agencies modify their systems to improve interoperability across Government.

7.32 Government also needs to find ways of balancing the time lapse between the start of procurement and the award of contract with the associated costs incurred. We have seen good examples where a proof-of-concept phase has been used to test the validity of an approach before either department or supplier is committed to the costs and effort associated with a full procurement. While this can increase the length of time before a contract is awarded, it can reduce procurement costs and improve the quality of the final solution. (See Section 5 for more on purchasing proof-of-concept phases.)

SECTION 8 – Cross-cutting Initiatives

A cross-cutting project or programme is one with objectives that require contributions from more than one department or agency.

Increasingly, Government organisations are contributing to the delivery of cross-cutting projects with partner organisations.

To be successful, cross-cutting projects and programmes need to apply the same disciplines as those being driven within one organisation.

What is a cross-cutting initiative?

8.1 The term 'cross-cutting' refers to a policy or service where there is joint working between government organisations.[44] Cross-cutting projects or programmes, therefore, are ones that have an objective or set of objectives that require contributions from more than one government organisation.

8.2 There are already a number of cross-cutting projects of varying types in progress across Government. For example:

- ONE – designed to provide a single point of contact for people of working age who are claiming benefits, this project brings together the Employment Service, Benefits Agency and local authorities to deliver a unified service to the individual.
- IBIS (Integrating Business and Information Systems) initiative – the organisations contributing to the Criminal Justice System (the Home Office and its agencies, Crown Prosecution Service, Lord Chancellor's Department and police service) are working through this initiative to integrate their systems to facilitate better joint working and information sharing.

Why have cross-cutting initiatives?

8.3 The drive to modernise Government – and in particular to deliver services in ways designed around the needs of citizens rather than the administrative convenience of Government – will increase the number and variety of cross-cutting projects and programmes. The e-government Strategy, launched in April 2000, requires departments and agencies to consider how they will harness new technologies to enhance service delivery, including through cross-cutting initiatives.

Managing successful cross-cutting initiatives

8.4 By their nature, cross-cutting projects and programmes can be hard to steer to success. Issues such as stakeholder involvement and risk management, challenging enough within one organisation, can be even more difficult to manage across organisational boundaries.

> **Evidence**
>
> A $165 million project undertaken between an airline, two hotel chains and a car rental firm, collapsed because 'there were too many cooks and the soup spoiled'. The parties to the project also cited an incomplete statement of requirements, lack of user involvement and constantly changing requirements and specifications as other major causes of the failure.[45]

8.5 Our research has shown that 'joint' or unclear ownership can create serious difficulties for cross-cutting work, eroding business focus and leading to ineffective decision-making. As with projects within organisations, those that cut across boundaries must have a clear focus on business objectives and clear lines of accountability. They must have a Senior Responsible Owner (SRO) and a single, unified business case and the views of stakeholders must be taken into account. The SRO will need to be sure that the recommendations in this study are being applied throughout the project or programme.

8.6 A regularly updated business case is the key to ensuring that a project remains on track to deliver the projected business outcomes and benefits. Regular peer reviews (see Section 10) will help SROs to assure themselves of this.

Recommendation 23: Cross-cutting projects and programmes must have a unified, regularly updated business case. An SRO must be appointed to all such initiatives and they must assure themselves that the recommendations of this study are being applied.

SECTION 9 – People and Skills

The Modernising Government agenda places a huge demand on departments, agencies and IT suppliers to expand the skills they will need to deliver successful business change.

Government needs to enhance its skills in the procurement and management of IT at a time when global demand for these skills is escalating and widespread skill shortages are being predicted.

All departments and agencies will need to retain some core skills and must consider early development and recruitment in key areas.

Government needs to get better at identifying and measuring these core skills and provide rapid ways of developing and acquiring what is missing.

The Centre also needs to act now to help departments and agencies prepare to meet the demands of the e-government Strategy.

Growing demand for IT skills and global shortages

9.1 Government has a massive legacy of large IT systems that have been developed over the last 30 or more years. These systems support vital Government services and hold massive volumes of data that future service providers will need to access, in order to improve delivery.

9.2 Departments and agencies will need to develop a range of skills in their workforce that allows them to introduce new solutions in partnership with their IT suppliers. However, the IT industry is predicting significant skills shortages over the next five years (as many as 300,000 unfilled posts in the UK, according to some research) and Government must develop some imaginative strategies for recruiting and developing its personnel.

> *Evidence*
> A Central Computer and Telecommunications Agency (CCTA) report to the Central IT Unit (CITU) identifies a wide range of IT-based skills that will be needed to deliver the e-government Strategy.[46]
> Private sector research suggests that IT skills shortages in Western Europe could cost businesses as much as €380 billion in the next three years.[47]

Impact of outsourcing Government IT

9.3 Although some departments and agencies still retain significant in-house technical capabilities, responsibility for much of Government's technology has been transferred to the private sector. Large numbers of technical experts and project managers have also moved to the private sector as part of this transfer. It is not possible to attribute project failures directly to this skills migration but we have found

recurring evidence that departments and agencies are having great difficulty finding and retaining sufficient numbers of experienced project managers, in particular.

> **Evidence**
> CITU estimate that the Government's workforce of IT practitioners has fallen from around 12,000 in the mid-nineties, to less than 3,000 today.[48]

9.4 Our review found instances where departments and agencies have failed to understand the impact of a new system, either underestimating the disruption it would cause or overestimating the likely benefits. It appears that this has come about because they have been left with insufficient skills and experience to challenge and validate supplier proposals. Under pressure to deliver efficiency savings and better services, departments have been prepared to accept unrealistically optimistic views of the likely success of a project.

> **Evidence**
> After outsourcing the bulk of its IT development capability, a large department recognised that it would be necessary to increase the numbers of staff with the right skills and experience to work closely with the IT supplier. The department has, as a result, re-developed some in-house skills, particularly in business analysis.[49]

The need for core IS skills in Government

9.5 There is growing awareness across Government and the IT industry that organisations which have outsourced all or part of their IT must retain at least some core skills in order to manage contracts and projects effectively and take full advantage of the opportunities IT offers. These core IT-based skills are referred to in this report as IS skills. They do not necessarily represent deep-seated technical expertise but do involve the ability to recognise how to make better use of technology and technical resources. It should be stressed that a range of business skills is also needed to manage new technology at all levels of an organisation. A study conducted by David Feeny and Leslie Willcocks (Oxford Institute of Information Management, University of Oxford) identifies nine clusters of core IS skills that an organisation must retain internally, even though they may have outsourced their IT functions:

- leadership;
- business systems thinking;
- relationship building;
- architecture planning;
- making technology work;
- informed buying;
- contract facilitation;
- contract monitoring; and
- vendor development.

9.6 Government will be looking primarily to the private sector to provide the technology on which new services will be developed and the associated technological skills. However, there will still be a need for people within departments and agencies to perform the host of activities that are crucial to the

successful delivery of new services and the full exploitation of new technology. For example, departmental and agency staff will need to:

- manage projects and programmes of business change that include IT components (as opposed to IT projects);
- build business cases that drive the use of new technology;
- develop ways of designing consistent business processes;
- manage business risks and the delivery of business benefits; and
- manage new commercial contracts and procurement processes.

9.7 Government will also need people who can communicate effectively and build long-term relationships with their community of IT suppliers, at all levels of the organisation, and technical architects who can assess the potential overall impact of technical solutions.

9.8 Government needs to ensure that people entering the Senior Civil Service are exposed to business driven projects and project management, particularly where IT has been embedded in the business change.

> *Evidence*
>
> A large department that outsourced its IT functions has subsequently re-trained over 100 in-house staff in business analysis skills to work alongside the supplier in agreeing feasibility and designs. This has significantly improved the delivery of IT for the department.[50]

9.9 Government faces several challenges. It needs to:

- confirm in more detail the types and numbers of IS skills needed to deliver the e-government Strategy;
- measure more accurately the gap between what is needed and what currently exists; and
- develop delivery options that allow departments and agencies to build up skills effectively and in a timely manner.

Confirming and measuring need

9.10 Currently, departments and agencies have no easy way of establishing in any detail the types and numbers of skills they will need to deliver the e-government Strategy.

9.11 The Alliance of IS Skills (AISS), a collaborative panel of UK institutions and lead bodies with an interest in IT, has, with the IT National Training Organisation, developed a tool called the Skills For the Information Age (SFIA) framework. The SFIA enables the easy identification and classification of technical skills, such as programming, system design and system management, and breaks them down into more specific clusters that can be used to measure an individual's set of competencies and build a view of an organisation's capabilities and strengths. The SFIA will be used over the next year to help departments, agencies and IT providers assess their technical readiness to deliver the e-government Strategy.

9.12 Using an agreed framework would help all those involved in developing IS skills in Government to clarify tasks and responsibilities.

9.13 A framework will enable the Centre to gather market intelligence coherently and consistently, to quantify the skill requirements of the market and identify and measure skills that are in short supply.

Recommendation 24: Government, through CITU (supported by the Office of Government Commerce (OGC)), must develop the processes and guidance necessary to enable the SFIA or an equivalent technical skills framework to be used by departments and agencies as they develop their responses to the e-government Strategy.

9.14 An equivalent process is urgently required for the business skills necessary to manage IT. The study, 'Core IS Capabilities for Exploiting Information Technology' (SLOAN Management Review, Spring 1998), offers a potential starting point for a framework for Government.

Recommendation 25: CITU (supported by OGC and the Centre for Management and Policy Studies (CMPS)) must develop an extension to the SFIA, embracing the core IS skills identified in the SLOAN review. We recommend that:

- **departments and agencies should use the extended SFIA in developing their responses to the e-government Strategy; and**
- **in order to meet the demanding timetable of the *Modernising Government* agenda, initial processes and guidance must be made available by August 2000, so that departments and agencies can use them in preparing their responses to the e-government Strategy (due October 2000).**

The Civil Service Reform agenda

9.15 Delivering the core IS skills will require a range of actions across the Civil Service. As part of the drive to modernise the service, the Cabinet Secretary submitted to the Prime Minister, in December 1999, a report setting out a programme of work designed to better equip the Service to face the challenges ahead. (This report is available at http://www.cabinet-office.gov.uk/index/civilservice.htm)

9.16 The programme of work is being driven by Civil Service Corporate Management Command (CSCM) in the Cabinet Office and will address six areas:

- leadership;
- business planning;
- performance management;
- diversity;
- bringing in and bringing on talent; and
- a better deal for staff.

In each of the areas there is a range of actions being taken in the Centre, by CSCM and the CMPS, and others in individual departments and agencies.

9.17 The findings of our study clearly have implications for the way in which the reform agenda continues to address these six areas. There is much in the agenda that starts to tackle many of the weaknesses identified in this report, for example using merit promotion in post to develop deeper expertise could be valuable for bringing on core IS skills. However, it is important that the agenda continues to draw on our findings as it develops.

Recommendation 26: The work on Civil Service Reform, being led by CSCM in the Cabinet Office, should explicitly take into account the findings of this study.

9.18 Some specific action has already been agreed:

- The leadership training modules being developed by the CMPS will incorporate material on change management and governance for projects.
- To help ensure that departments have sufficient skills and awareness at more senior levels, delivery of change projects will be added to the list of areas that it would be desirable for civil servants to have had exposure to before being promoted to the Senior Civil Service.
- The revised competency framework for the Senior Civil Service will include competencies addressing this area.

Developing other delivery options

9.19 In addition to the Civil Service Reform work, departments will need support from the Centre in identifying new skill-sets to support the use of new technology and establishing a range of ways to deliver those sets. During our review, we have seen good practice examples from within the UK Government and private sector, other Governments and international organisations, offering a variety of techniques that can be combined to provide effective ways of improving skills. The list below is illustrative of these techniques but not exhaustive:

- formal training;
- electronic guidance (increasingly via the Internet);
- vocational training;
- centres of expertise;
- mentoring;
- central pools of experts to start off new processes or techniques;
- secondees from other departments, governments and industry; and
- peer reviewing.

Evidence
A department with extensive experience of the benchmarking process has set up a Benchmarking Centre of Expertise with the Cabinet Office, to offer advice to departments and agencies with less experience.[51]

Evidence
A government department has designed a model for its procurement function that identifies a 'virtual stream' of personnel development, including formal training, structured career moves and coaching.[52]

Evidence
The US Government has developed a programme with a number of major academic institutions to encourage modular vocational training for Government employees in areas such as strategic planning and project management.[53]

9.20 To encourage recruitment and support re-training drives, Government also needs to raise the level, status and career values of posts requiring IS skills and consider options for incentivising and rewarding people who stay in or take up these posts. Existing mechanisms to attract and retain IS skills are inadequate and are hampered by the significant pay differentials that exist between Government and the private sector in this field. Rapid progress in this area is needed. One option, referred to in our recommendation on peer review, is to set up a central set of experienced people, seconded for periods from departments and the private sector, as a short-term resource to help spread the appropriate skills across Government. Secondments between departments and the private sector are already promoted through the Interchange Programme, managed by Cabinet Office, and departments should be encouraged to consider this option.

9.21 It is also important to recognise that smaller departments and agencies will have particular difficulties in this area, and may need additional support from the Centre.

9.22 The Central Government National Training Organisation (CGNTO) will also have an important role to play and CITU will liaise with them on how best to take this work forward.

Recommendation 27: The Government, through CITU (supported by OGC and CMPS), must develop processes to support the co-ordinated and ongoing assessment of its IS skills base and mechanisms to ensure delivery of improvements. These proposals should be in place by December 2000.

SECTION 10 – Learning Lessons

Improving performance means learning the lessons from experiences, both good and bad.

In the past, change programmes and projects have been carried out without an awareness of what was happening, or had already happened, elsewhere.

A system of peer review will spread knowledge and ensure that new initiatives have the benefit of experience as they go ahead.

New mechanisms are needed to ensure that best practice and good advice are readily available and easy to use.

Learning and sharing

10.1 Learning and sharing the lessons from past experience should be part of everything Government does. The Government is committed to improving the management of knowledge and information within the Civil Service and has set up the Centre for Management and Policy Studies (CMPS) in the Cabinet Office to provide a new corporate lead for work in this field.

10.2 Effective learning and knowledge sharing is particularly important in managing projects and programmes. There are a number of reasons for this:

- Although different organisations may be trying to achieve very different things with IT, many of the processes will be common to all. For example, anyone implementing change projects needs to involve the users, manage risks and make contingency plans. Therefore there is plenty of scope for sharing experience.
- Managing complex business change involving IT is a difficult and risky process. Obtaining help and advice from those in Government who have experience of this process is one way of helping to mitigate the risks.
- The technology involved, and views on how to manage it, move extremely fast. It is vital to be prepared to develop innovative ways of delivering services in response to rapidly changing circumstances. Therefore, approaches to managing projects need to be adaptable as lessons are learnt from new approaches.

10.3 There are a number of complementary approaches that will help to build an improved lesson learning capability.

Peer review

10.4 The most effective method of learning is from experience rather than abstract notions of best practice. A mechanism is needed to allow people experienced in the types of issues likely to be faced in complex projects to develop a pool of this knowledge and apply it across Government. The introduction of peer review – using

experienced people from one part of an organisation, or drawn from a group of organisations across Government, to perform a targeted scrutiny of a project – will facilitate learning by all parties involved.

10.5 Peer review will also provide independent assurance to the Senior Responsible Owner (SRO) that decisions taken at key points in the project are being based on sound information. To be effective, it is vital the peer review team has independence and authority, as well as enjoying an open, trusting and co-operative relationship with the project. Over time, the knowledge that independent peer review informs the approval process should influence behaviour, encouraging increased rigour in the way projects are framed and delivered.

> *Evidence*
>
> An international petrochemical company has a streamlined peer review process across the organisation that is firmly tied into project 'gateways'. Approval to proceed to the next stage is given only on presentation of a satisfactory peer review report to the project board. The maximum duration of the reviews is eight working days and they would usually involve no more than six individuals.[54]

10.6 The principle of independent review remains sound, almost irrespective of the scale or complexity of a project. It is possible to take an approach that is common to all projects, regardless of the funding and procurement models used, but which can be tuned to reflect the variety, scale and complexity of the undertaking. The result should range from quick peer reviews locally managed and resourced for small projects, to reviews with teams drawn from across Government for the largest projects. Initially, while departments and agencies become familiar with the techniques and processes, peer review results from the highest risk projects will be subject to joint formal sign-off by the SRO and Office of Government Commerce (OGC). However, OGC's aim is that SROs will, in time, be able to take full responsibility. Peer reviews should be used in a seamless way with the 'gateway' approval process overseen by OGC. They should have a balance of rigour and brevity, making sure the project is robust without incurring damaging delays.

> *Evidence*
>
> An oil exploration company uses a peer review process for all capital projects, including those dependent on IT. Peer reviews are centrally managed and are carried out at five predetermined value assurance points. These appraise output from the previous stage and justification to proceed to the next.[55]

10.7 Individuals with the skills needed to conduct peer reviews are in short supply. Drawing as many peer reviewers as possible from departments or elsewhere within Government will promote knowledge exchange. However, in some cases it may be necessary to engage reviewers from private sector firms to supplement the skills available. In cases where skills are not available through these channels, consultants might be used. The OGC should maintain a register of those who would be suitable for particular reviews.

Evidence

A government department has an established and successful programme of peer reviews. They intend to significantly expand their in-house capability, accelerate the process of skills transfer and reduce their reliance on consultants.[56]

Recommendation 28: The draft peer review process developed by this study (see Annex B) should be implemented by OGC by September 2000, in parallel with their gateway approvals process, and departments and agencies should carry out and contribute to project peer reviews at the recommended intervals.

Exchange of information

10.8 Many of the other recommendations in this report will generate lessons, examples of good practice, guidance and lists of experienced contacts that will need to be shared across Government to facilitate a general rise in performance. In particular, the peer review process will produce a wealth of information that needs to be widely shared.

10.9 There are two elements to ensuring that this exchange process works effectively. First, the organisations tasked by this report with implementing recommendations must gather the lessons generated by the operation of those recommendations. In particular:

- OGC will be responsible for drawing information from the peer review process, measures to improve focus on business change (see Section 1) and the operation of new guidance on SROs, risk, benefits realisation, modular/incremental development, project management and procurement (Sections 2–7).
- The Central IT Unit (CITU) will be responsible for drawing information from the operation of the recommendations on skills (Section 9).

10.10 Second, CMPS is developing expertise in making sure that best practice information is available in suitable formats and forums and is widely used. CMPS will have to apply its skills to the material coming from OGC and CITU.

10.11 New methods of sharing and spreading knowledge must include use of the Government Secure Intranet (GSI) as a way of making material easily available. Priorities for the GSI will include:

- contact details for those with experience of different types of work;
- examples of standard materials (such as outlines of business cases or risk management documents); and
- links to the outputs of this report's recommendations, such as guidance on risk, business change and the roles and responsibilities of SROs.

Recommendation 29: Government must establish effective permanent mechanisms for obtaining and disseminating information about managing programmes and projects. This should be carried out by CMPS in co-operation with OGC and CITU. The first outputs, including information on the GSI, to be available by September 2000.

> **Evidence**
>
> A major financial services company uses its corporate intranet to make available a large amount of information on how to manage projects. The material is presented in an accessible, user-friendly format which enables inexperienced managers to track down sources of advice quickly and simply. A government department also has a project management website on its intranet.[57]

> **Evidence**
>
> Canada's Treasury Board Secretariat has put templates of key documents from their project management methodology onto the Internet, allowing all parts of Government to make use of this centrally-created resource.

10.12 Keeping the measures set out in this report up to date, and identifying how they need to be changed in the light of experience, requires a holistic view of the effectiveness of the complete package. Section 11 sets out the implementation strategy for this report, which includes a review of the impact of all the recommendations and the progress that has been made.

Developing a database

10.13 There is currently no central system in Government for gathering and maintaining information on projects and it is essential that one is created to inform all aspects of project development.

10.14 Information gleaned from jointly-led and OGC-supported peer reviews will also be used to update a database of information on large projects and programmes. The details stored will cover aspects of programmes such as projected timetables and contact details for project owners. Kept fully up to date, this database will be a valuable source of information on the progress of major projects and programmes across Government.

10.15 Once the system has been populated, the database will provide a tool for the learning and experience sharing we recommend. The system will be continuously maintained and developed to provide a living information resource. It will support effective knowledge sharing, which will feed back into the peer review process and the continuous development of best practice guidance in a virtuous circle of improvement.

10.16 The database will also be a valuable tool for those monitoring the implementation of the e-government Strategy. In addition, once it is well established, it could be used as a way of facilitating a dialogue with industry, for example through the Industry Consultative Committee. Such a process would help spread lesson learning beyond Government, bringing benefits to all concerned.

Recommendation 30: The Government, building on specifications developed by this review, must construct a system for gathering, maintaining and sharing information about the progress of projects and programmes. This system will be developed and maintained by OGC, in consultation with CITU and others, with completion of the system due by December 2000.

SECTION 11 – Implementation Strategy

Implementation of the recommendations set out in this report will be vital to the achievement of Information Age Government.

Implementation of these recommendations will be owned by the e-envoy who will make an interim report to the e-government Minister in December 2000 on progress and further reports on an ongoing basis.

Permanent Secretaries will be responsible for driving and monitoring progress in implementing these recommendations in their departments and agencies; reporting on progress to the e-envoy.

The Centre will have an important role in implementing the recommendations made in this report. This role must be understood by, and promoted to, government departments and agencies and industry.

Information Age Government

11.1 The e-government Strategy outlines an ambitious vision for Information Age Government. To fulfil this vision the Government will need to improve its management of change projects that have significant IT components.

11.2 Implementation of the recommendations set out in this report is fundamental to achievement of the Information Age Government vision and must be closely integrated into the process of implementing the e-government Strategy. However, these recommendations are broader than e-government and cover all change projects.

11.3 Both the Central IT Unit (CITU) and the Office of Government Commerce (OGC) will have an essential role to play in developing guidelines and encouraging their adoption, as well as in facilitating lesson learning. However, the success of our recommendations depends on the action of all government departments and agencies. Industry also has a role to play, including improving its own practices, and can share in the overall benefits derived from the recommendations.

11.4 The summary table at the end of this section lists all the recommendations in this report and indicates who will be responsible for taking them forward within Government and by when. Although the dates in the table mainly arise in the next six months, many of the recommendations set up ongoing processes that will continue to make a difference in the medium to long term.

Ownership and monitoring progress

11.5 The implementation of these recommendations will be owned by the e-envoy who will report to the e-government Minister on progress. The e-envoy will be the Senior Responsible Owner (SRO) for the implementation of this report and will work with those central departments taking forward individual recommendations to ensure an integrated approach.

11.6 The e-envoy will make an interim report to the e-government Minister in December 2000 on how the implementation of our recommendations is progressing and will make further reports on an ongoing basis. Prior to that report, the e-envoy will need to agree with the owners of the recommendations how successful implementation will be measured and what the key assessments of progress will be in the short, medium and longer terms.

11.7 Each of the recommendations breaks down into one or more activities that are required either at the Centre, by suppliers or within all departments and agencies. These activities are listed in the action plans at the end of this section. The action plan for the Centre can be monitored by tracking progress against deliverables at the milestones.

11.8 The plan for departments and agencies contains recommendations that will need to be implemented gradually and the Centre will develop an appropriate monitoring mechanism. Departments and agencies will not all be at the same stage and may have different priorities for implementation. The monitoring needs to be flexible and show stages of implementation. In addition, the Centre will have to consider the particular needs of small agencies, which may need additional support if they are to implement the recommendations successfully.

11.9 Permanent Secretaries will be responsible for driving and monitoring progress in the implementation of our recommendations in their own departments and agencies, reporting on progress to the e-envoy.

Ensuring compliance

11.10 All Principal Accounting Officers and Additional Accounting Officers will be required to make an annual statement of compliance with the principal recommendations of this review. This will require work by the Centre to develop and implement this practice alongside the Statement of Internal Financial Control (SIFC), already in place, and the Statement of Internal Control (SIC) which, it is proposed, will replace this in the light of the Turnbull report.

11.11 Implementation of the recommendations in this report cannot be considered optional if improved practices and greater success are to be achieved. Where a department or agency proposes an alternative action, it will need to demonstrate clearly the reasons and seek endorsement from the Centre.

11.12 In addition, the e-envoy will be able to require a project to undergo OGC-led peer review at gateway points where it impacts substantially on the e-government Strategy.

Measuring success of this review

11.13 Proposed criteria for success:

- recommendations implemented within planned time frames;
- departments' and agencies' compliance with the recommendations;
- e-government target date of 2005 achieved (Government's ability to manage and successfully implement large projects will be essential in achieving this target);
- high-profile project failures prevented;
- cost of procurement reduced;
- ongoing lessons learnt and applied, knowledge sharing encouraged; and
- user satisfaction gained.

Priority of recommendations

11.14 The action plans at the end of this section of the report set out the recommendations on which different parts of Government have to act, in priority order. The recommendations to be acted on first are those where early action is essential to make a difference, or where it can be taken relatively easily.

11.15 In particular, OGC will prioritise establishment of the peer review process and its gateway reviews, building on the pre-contract reviews of projects that were brought in while this report was in development. These reviews will ensure that programmes and projects coming forward before the full set of recommendations is implemented are in a fit state to proceed.

Communication and interaction with stakeholders

11.16 Communication of this report to departments, agencies and industry will be vital to its success. A strategy to communicate the study's findings to all stakeholders has been put in place. As well as ensuring that all the relevant audiences both within and outside Government are informed about the report, the development of a communication strategy will contribute to the establishment of an ongoing culture of lesson learning and good practice within Government.

11.17 The Computer Software and Services Association (CSSA) study, being conducted in parallel with this review, will provide valuable views from the IT industry. The recommendations made by CSSA will be considered and, where appropriate, incorporated into the Government implementation strategy.

Scope

11.18 The implementation of these recommendations will apply to all central government departments, agencies and non-departmental public bodies.

11.19 The administrations in Scotland, Wales and Northern Ireland are responsible for deciding their approach to the management of large IT projects. They have co-operated closely with the Cabinet Office in the preparation of this report, and are considering how to apply its principles and recommendations.

11.20 Where central government is involved in 'cross-cutting' projects with local government, the central government department or agency will be responsible for ensuring the recommendations are followed. This report will be shared with the Central Local Information Age Forum for their consideration when drawing up best practice guidelines for the implementation of IT projects.

11.21 For the NHS in England adoption will be in accordance with the existing collaborative arrangements between the NHS Executive Regional Offices, the NHS Information Authority and Health Authorities and relevant local NHS-funded organisations established under the NHS's Information for Health strategy.

Action Plans for the Centre (CITU, OGC, CMPS, CSCM, HMT)

Central IT Unit (CITU)

Activity	Timing
Provide information to CMPS for professional development events. **Supports Recommendation 4**	May 2000
Provide information to CSCM for input to their Civil Service Reform initiative. **Supports Recommendation 26**	May 2000
Lead work to publish the IS skills framework based on SFIA and extended to include both business development and other core skills identified in the Sloan review. Supported by OGC. **Supports Recommendations 1, 24, 25**	Guidance by June 2000
Provide information regarding skills to the CMPS mechanisms for lesson learning and knowledge sharing. **Supports Recommendation 29**	First outputs by September 2000
Lead work to develop processes for co-ordinated and ongoing assessment of IS skills base across Government, including involving departments in provision of guidance and expertise. Supported by OGC. **Supports Recommendation 2, 27**	Guidance by December 2000

Office of Government Commerce (OGC)

Activity	Timing
Extend guidelines for the independent pre-contract review of major projects to include ongoing review. Monitor compliance with these guidelines including sign-off prior to contract signing (gateway process). **Supports Recommendation 21**	Immediate and ongoing
Provide ongoing support and resources to the peer review process and update the central database with the results of peer reviews. Publish the Project. Profile Model and peer review guidelines. **Supports Recommendation 10, 28**	Immediate piloting based on review team guidance, Project Profile Model and peer review guidance revised by December 2000 in the light of pilots, ongoing
Building on work conducted by the study team, develop a system for gathering, maintaining and sharing information about the progress of projects. **Supports Recommendation 30**	Immediate hand over to OGC of review team database and database specification (May 2000). Interim system developed and data collection started by September 2000 Full system for ongoing recording and measurement in place by December 2000
Integrate SRO with the existing PRINCE 2 guidance. Produce competency and training requirements for SRO and project management role. **Supports Recommendations 6, 9**	Integration, competencies and training requirements for input to the Civil Service College by December 2000
Issue practical guidance on developing the business case for business change based on review team model. **Supports Recommendation 3**	Guidance by August 2000
Investigate available expertise both in developing the business case for business change and in project management. Develop further guidance where necessary and facilitate the introduction of a mentoring capability for both disciplines. **Supports Recommendations 2, 9, 27**	Further guidance and mentoring capability by December 2000
Produce interim map to support existing guidelines on risk and further guidance for risk escalation and reporting. **Supports Recommendation 11**	Interim map by August 2000. Full guidance by December 2000

Office of Government Commerce (OGC) – contd.

Activity	Timing
Continue to collect detailed information about top ten IT suppliers. Develop a plan for the ongoing maintenance of this information. **Supports Recommendation 22**	First set of intelligence data and plan for ongoing maintenance available by December 2000
Provide information from the peer review and gateway process for input into the CMPS mechanisms for lesson learning and knowledge sharing. **Supports Recommendation 29**	First outputs by December 2000
Lead work to review information received from ongoing and post-implementation reviews conducted by projects, disseminate this information and establish additional measures for ensuring maximum realisation of benefits. Supported by CITU. **Supports Recommendations 17, 18**	Process in place to receive information from projects and a full plan for reporting regularly on measures of success by December 2000. Ongoing
Complete an audit of the existing procurement guidelines and following on from the audit, produce revised procurement guidelines on-line. **Supports Recommendation 19**	Audit complete and guidance produced by October 2000
Build on work done by the review team to produce practical guidance on applying modular development to projects. **Supports Recommendation 13**	Immediate interim guidance issued with review. Further guidance by December 2000

Centre for Management and Policy Studies (CMPS)

Activity	Timing
Incorporate findings of review in ongoing seminars. **Supports Recommendation 4**	Immediate and ongoing
Develop mechanisms to provide lesson learning and knowledge sharing based on information supplied by CITU and OGC. **Supports Recommendation 29**	Mechanisms in place and first outputs by September 2000. Ongoing
Assist CITU in developing skills framework to include business development skills. **Supports Recommendations 1, 24, 25**	June 2000

Civil Service Corporate Management (CSCM)

Activity	Timing
Incorporate findings of review in ongoing Civil Service Reform initiative. **Supports Recommendation 26**	Immediate and ongoing

Her Majesty's Treasury (HMT)

Activity	Timing
Review existing systems used by departments and agencies for realising benefits. **Supports Recommendation 16**	Complete by December 2000

Action Plan for departments and agencies

Activity	Timing
Ensure that a single Senior Responsible Owner is appointed for all projects, including those that cut across more than one department or agency, and that personal objectives set for these individuals include the responsibilities of this role. **Supports Recommendations 5, 7, 23**	Immediate and ongoing
In all dealings with suppliers, both on new and existing projects ensure that activities aimed at co-operation and open communication are encouraged. **Supports Recommendation 20**	Immediate and ongoing
Nominate a contact point for contributions to the central database and notify OGC of all current and pending projects in order to benefit from lessons learnt and to contribute to the central database. **Supports Recommendation 30**	Immediate and ongoing
Ensure that pre-contract review of supplier's plans is carried out for all major IT projects and that review continues through the life of the project. Ensure that own plans are in order as well. **Supports Recommendation 21**	Immediate and ongoing
Ensure that periodic reviews are carried out during the life of a project to monitor and capture the realisation of benefits. **Supports Recommendation 14**	Immediate and ongoing

Action Plan for departments and agencies – contd.

Activity	Timing
Ensure a post implementation review is carried out for all projects. **Supports Recommendation 15**	Immediate and ongoing
Adopt a formal project management approach, such as PRINCE 2, for all new projects. **Supports Recommendation 8**	Immediate and ongoing
Provide audit of skills as part of the *Modernising Government* action plan based on IS skills framework. **Supports Recommendation 25**	Complete by October 2000 (Guidance available June 2000)
Ensure that all major projects have a business case for business change, in line with the guidelines, and that this business case is monitored and updated throughout the life of the project. **Supports Recommendation 3**	Ongoing (Guidance available August 2000)
Ensure that all projects follow the risk escalation and reporting guidelines **Supports Recommendation 11**	Ongoing (Guidance available December 2000)
Liaise with OGC and use the Project Profile Model to determine the complexity of new projects, to determine the required level of project management experience, and conduct peer reviews of all new projects following guidelines supplied and feeding information back to the central database. **Supports Recommendations 10, 28**	Ongoing (Guidance available September 2000)
Conduct a review of training provided to project managers and ensure that all project managers have the appropriate training in accordance with guidelines published by OGC. **Supports Recommendation 9**	Ongoing (Guidance by December 2000)
Ensure that all projects follow the revised procurement guidelines **Supports Recommendation 19**	Ongoing (Guidance by December 2000)
Ensure that all major projects follow a modular approach unless for overwhelming and documented reasons. **Supports Recommendation 12**	Ongoing (Guidance by December 2000)
Ongoing assessment and improvement of IS skills **Supports Recommendation 27**	Ongoing (Guidance by December 2000)

Action Plan for suppliers

Activity	Timing
Work with departments and agencies to ensure their proposed solutions meet business needs not just technical or operational requirements. **Supports Recommendation 21**	Immediate and ongoing
Produce realistic plans, including financial, technical, personnel and communication plans, through the lifecycle of the procurement to ensure continuing alignment of supplier activity with business need. **Supports Recommendation 21**	Immediate and ongoing
Share information about problems at the earliest opportunity to ensure small issues do not escalate. **Supports Recommendation 20**	Immediate and ongoing
Agree processes at the start of the procurement that will actively encourage co-operation and an open dialogue between supplier and client. **Supports Recommendation 20**	Immediate and ongoing
While Government ultimately has responsibility for the assessment and acceptance of bids, suppliers must ensure that they fully understand the requirements, that bids are realistically priced and the timescales proposed are achievable. **Supports Recommendation 21**	Immediate and ongoing

Full list of Recommendations

Recommendation	Leader	Timing
Business Change		
Recommendation 1: Business development skills must be included as a key feature in the extended Skills For the Information Age (SFIA) framework to be developed by the Central IT Unit (CITU) supported by the Office of Government Commerce (OGC) and the Centre for Management and Policy Studies (CMPS) – see Recommendation 25.	CITU	Guidance by June 2000
Recommendation 2: CITU (supported by OGC) will, by building on existing best practice and ensuring flexibility for different departments with different needs, involve departments in the provision of guidance and expertise to strengthen the application of the necessary business development skills across Government – see Recommendation 29.	CITU	Guidance by December 2000
Recommendation 3: Business cases must reflect all of the business change to be delivered. Practical guidance on the contents of such a business case will be provided by OGC using the draft business case model developed by the study team (Annex D). The model, available by August 2000, will be taken into account in the OGC audit of procurement guidance – see Recommendation 19.	OGC Departments	Guidance by August 2000 Ongoing implementation
Leadership and Responsibility		
Recommendation 4: Professional development events for Ministers and senior civil servants being organised by the Centre for Management and Policy Studies (CMPS) will include informing them of their role in, and responsibility for, major IT projects and programmes. These events will include joint seminars. CMPS will also explore the scope for running joint events with the IT industry. The first of the development events will take place in May 2000.	CMPS	Immediate and ongoing

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Recommendation	Leader	Timing
Leadership and Responsibility – contd.		
Recommendation 5: All IT-supported change projects or programmes must have a single, named Senior Responsible Owner (SRO). This individual is responsible for ensuring that the project or programme meets its overall objectives and delivers its projected benefits. The seniority of the SRO will depend on the size, complexity and associated risks of the work being undertaken but, in all cases, they must be the business sponsor of the change that is driving the IT development. This applies to individual projects and also groups of projects making up a programme.	Departments	Immediate and ongoing
Recommendation 6: An interim checklist of the roles and responsibilities of the SRO will be made available to departments and agencies by June 2000. A fuller version will be issued by December 2000. The guidance will be regularly updated and refined in the light of experience, and supplemented by information-sharing processes, including forums and networks. This work will be led by OGC.	OGC	Guidance by June 2000 Ongoing update
Recommendation 7: An individual's responsibilities as an SRO must be explicitly included in their personal objectives. The SRO for a project or programme should remain in place throughout or change only when a distinct phase of benefit delivery has been completed. Departments and the Centre should take the need for continuity and previous experience into account when jobs are advertised and appointments made.	Departments	Immediate and ongoing

Recommendation	Leader	Timing
Project Management		
Recommendation 8: The SRO of each project must ensure that a formal approach to project management, such as PRINCE 2, is applied.	Departments	Immediate and ongoing
Recommendation 9: Key staff on major projects must undertake formal project management training appropriate to their role in the project, and mentoring should be made available to all project managers across Government through mechanisms put in place by OGC from December 2000.	OGC	Competency and training requirements by December 2000 Mentoring capability by December 2000
Recommendation 10: Departments and agencies must assess the difficulty of their projects, using the Project Profile Model, and match this against the abilities of their project management.	OGC Departments	Guidance by September 2000 Ongoing implementation
Risk Management		
Recommendation 11: Taking into account the NAO and HM Treasury initiatives already under way, the OGC will investigate further methods of problem reporting and upward referral. These will be based on the Project Profile Model and incorporate the Summary Risk Profile. OGC will bring forward a flexible method that can be modified according to the complexity of each project. Supported by clear guidelines for project managers and peer review teams, the model will be available by December 2000.	OGC Departments	Interim maps by August 2000 Full guidance by December 2000 Ongoing implementation

Recommendation	Leader	Timing
Modular and Incremental Development		
Recommendation 12: Departments and agencies must adopt a modular and/or incremental approach to projects, unless there are very strong reasons for not doing so. The approach to be taken must be clearly documented before large projects are initiated and must explicitly consider the capabilities of the organisation and its supplier(s) and the size of each proposed increment.	Departments	Immediate and ongoing
Recommendation 13: OGC must refine and expand on the preliminary guidance issued by the Major IT Projects Review team (Annex E) to provide more advice to help project planners determine their approach to modular and incremental developments. This guidance should be completed by December 2000.	OGC	Guidance by December 2000
Benefit Realisation		
Recommendation 14: All major projects or programmes must undertake periodic reviews of proposed benefits throughout development and implementation. The SRO is responsible for ensuring that this is done.	Departments	Immediate and ongoing
Recommendation 15: A post-implementation review must be undertaken of all projects or programmes and benefits realised assessed against projected benefits outlined in the original business case or subsequent amendments. These reports must be endorsed by the SRO and, for projects where their involvement is required, tabled with HM Treasury and the OGC.	Departments	Immediate and ongoing
Recommendation 16: HM Treasury (HMT) should review the systems departments and agencies have in place for monitoring the realisation of benefits and take these into account when considering proposals for major initiatives and investments. These reviews should be undertaken in parallel with the regular reviews of departmental investment strategies.	HMT	Reviews completed by December 2000

Recommendation	Leader	Timing
Benefit Realisation – contd.		
Recommendation 17: The OGC should review the results of post-implementation reviews, and ensure that valuable common information, such as trends in areas of successful or difficult realisation, is widely available. The work is to be ongoing, but should start by September 2000.	OGC	Starting in September 2000 and ongoing
Recommendation 18: OGC, in consultation with CITU, should examine what additional measures and guidance need to be established to ensure Government maximises benefits from its investments in technology. This work to be complete by December 2000.	OGC CITU	Process and full plan for ongoing reporting in place by December 2000
Procurement and Supplier Relationships		
Recommendation 19: OGC should audit existing policy and guidance on procurement and produce a consolidated and unambiguous set of material for IT, making it clear which elements are mandatory. This should be made available on-line and at no cost to Government users. The work should be completed by October 2000.	OGC Departments	Guidance by October 2000 Ongoing implementation
Recommendation 20: Departments and agencies must ensure that they put in place processes that will actively encourage co-operation and an open dialogue between supplier and client. Projects already under way should immediately re-examine their communication mechanisms to ensure appropriate processes are in place.	Departments	Immediate and ongoing

Recommendation	Leader	Timing
Procurement and Supplier Relationships – contd.		
Recommendation 21:		
Part 1: Before contracts are signed, suppliers must have produced a realistic plan, including timescales, resources and technology, for how they will deliver the outcomes being sought under the relationship. The same applies to evolutionary or modular phases within an existing contract. These supplier plans must be re-examined during the development stages of the project to ensure a close fit between business design, assurance and implementation intentions and the supplier activities concerned with developing the solution.	Departments	Immediate and ongoing
Part 2: Guidance for departments on how to evaluate such plans should be developed, initially by HM Treasury Task Force and then by OGC.	OGC	Treasury guidance currently available Ongoing update
Recommendation 22: OGC should continue to gather information about the top ten suppliers of IT to Government (by volume and value of business). The first set of intelligence data should be available by December 2000. The information gathered should include, for each supplier: • the range of IT services supplied (as defined in the Project Profile Model); • their recent performance with Government; and • in time, their ongoing performance against our recommendations.	OGC	First set of intelligence data by December 2000
Cross-Cutting Initiatives		
Recommendation 23: Cross-cutting projects and programmes must have a unified, regularly updated business case. An SRO must be appointed to all such initiatives and they must assure themselves that the recommendations of this study are being applied.	Departments	Immediate and ongoing

Recommendation	Leader	Timing
People and Skills		
Recommendation 24: Government, through CITU (supported by OGC), must develop the processes and guidance necessary to enable the SFIA or an equivalent technical skills framework to be used by departments and agencies as they develop their responses to the e-government Strategy.	CITU	Guidance by June 2000
Recommendation 25: CITU (supported by OGC and CMPS) must develop an extension to the SFIA, embracing the core IS skills identified in the SLOAN review. We recommend that: ● departments and agencies should use the extended SFIA in developing their responses to the e-government Strategy; and ● in order to meet the demanding timetable of the *Modernising Government* agenda, initial processes and guidance must be made available by August 2000, so that departments and agencies can use them in preparing their responses to the e-government Strategy (due October 2000).	CITU Departments	Guidance by June 2000 Responses required by October 2000
Recommendation 26: The work on Civil Service Reform, being led by Civil Service Corporate Management (CSCM) in the Cabinet Office, should explicitly take into account the findings of this study.	CSCM	Immediate and ongoing
Recommendation 27: The Government, through CITU (supported by OGC and CMPS), must develop processes to support the co-ordinated and ongoing assessment of its IS skills base and mechanisms to ensure delivery of improvements. These proposals should be in place by December 2000.	CITU	Guidance by December 2000

Recommendation	Leader	Timing
Learning Lessons		
Recommendation 28: The draft peer review process developed by this study (see Annex B) should be implemented by OGC by September 2000, in parallel with their gateway approvals process, and departments and agencies should carry out and contribute to project peer reviews at the recommended intervals.	OGC Departments	Guidance by September 2000 Ongoing support Ongoing implementation
Recommendation 29: Government must establish effective permanent mechanisms for obtaining and disseminating information about managing programmes and projects. This should be carried out by CMPS in co-operation with OGC and CITU. The first outputs, including information on GSI, to be available by September 2000.	CMPS	First outputs by September 2000
Recommendation 30: The Government, building on specifications developed by this review, must construct a system for gathering, maintaining and sharing information about the progress of projects and programmes. This system will be developed and maintained by OGC, in consultation with CITU and others, with completion of the system due by December 2000.	OGC	Immediate handover to OGC of review team database and database specification (May 2000) Interim system developed and data collection started by September 2000 Full system for ongoing recording and measurement in place by December 2000

ANNEX A – Steering Committee and Review Team

Steering Committee

Chair	Rt Hon Ian McCartney MP, Minister of State, Cabinet Office

Kevin Berry	John Lewis Partnership
Don Brown	Inland Revenue
Harry Bush	HM Treasury
Andy Carty	HM Treasury (PFI Taskforce)
David Cooke	Central IT Unit, Cabinet Office
Bruce Forbes	Norwich Union
Antony Foster	ICI
Peter Gershon	Office of Government Commerce
Dave Gostling	HM Customs and Excise
David Pepper	Home Office
Martin Pfleger	National Audit Office
James Purnell	Policy Unit, 10 Downing Street
Andrew Pyle	Shell
Andrew Sleigh	Ministry of Defence
Martin Sykes	Department of Social Security
Dick Wheeler	Department of Trade and Industry

Review Team

Leader	Ann Steward – Cabinet Office, seconded from Australian Federal Government

Gary Colet	Marks and Spencer
Mike Dewhurst	Department of Social Security
Steve Hay	HM Customs and Excise
Barbara Holland	Department of Social Security
Val Lloyd	Inland Revenue
Fiona McKay	Cabinet Office
Stephen Muers	Cabinet Office
Susan Robbins	Zurich Financial Services
Amanda Roper	Cabinet Office
Mark Sweeney	Cabinet Office

ANNEX B – Peer Review Process

Executive Summary

During the course of the review of major Government IT projects a number of projects benefited from advice given by the study team and some underwent expert scrutiny. Feedback from project teams in departments confirms that an independent perspective was useful in informing subsequent decisions. Peer review is well established in the private sector and some Government departments, and this report recommends that it be established as a discipline for all projects dependent on a significant degree of IT.

Scope and focus

The main report into major Government IT projects identifies the importance of looking at the project in the context of the **whole** business change being undertaken, not just the IT elements. The scope of the peer review process set out here bears this in mind. A particular focus is placed on providing assurance that business benefits from projects will be achieved, on the processes being employed and on the team competencies. This proposal for peer review does not address wider cultural or organisational change beyond that associated with projects dependent on a high degree of IT.

Skills and knowledge sharing

Experience in the key skills associated with successful projects of this nature is in short supply in Government. Peer review therefore has a major part to play, in making best use of the expertise available, counselling project teams and spreading knowledge across departments and agencies.

Project assurance

The Gershon Review of Civil Procurement in Central Government recommends that mandatory gateways be introduced. The output from peer reviews should inform decisions by project authorities at these gateways.

Peer review has an important part to play in providing assurance for the owner of a project, by informing decision-makers at key stages in the project lifecycle on the health state of the project. We have identified three key points in the lifecycle of IT-based projects at which peer reviews must take place. They are:

- at project initiation
  - after the initial business case has been prepared
  - after procurement strategy has been defined but prior to issuing an OJEC notice;
- prior to final investment decision (pre-contract review); and
- prior to implementation.

In addition, it is appropriate for departments and agencies to consider the use of peer reviews at other stages in their project developments. Reviews of developments undertaken in a modular or incremental way will necessarily be shorter and more focused, proportionate to the way the project is structured.

Resourcing

The skills required to carry out the proposed reviews are diverse, and not necessarily readily available to those undertaking them within departments. For this reason we recommend that the Office of Government Commerce (OGC) acts as a resource 'broker' to ensure skills are utilised effectively across Government. A small 'pool' of individuals on short secondments from both government departments and private sector companies should be maintained by OGC to be drawn upon for reviews of the biggest projects. Consultancy expertise would be utilised only where the appropriate skill was not available from within Government. OGC will also ensure that experiences and lessons learned from peer reviews are made widely available within Government.

Finally, it should be noted that peer reviews are complementary to the other ongoing project governance processes that will be in place, not a substitute for them.

Peer Review Process

B1. What is 'peer review' in the context of Government IT-dependent projects?

Peer review involves using fellow practitioners from within an organisation, or drawn from a group of organisations across Government, to perform a targeted scrutiny of a project elsewhere in the organisation. Reviews by peers, carried out at key stages in the project lifecycle, are appropriate to all projects regardless of the procurement model employed (e.g. Private Finance Initiative contract or the award of significant work within a framework contract). The peer reviews are designed to:

- give the project team the benefit of advice and guidance from fellow project practitioners; and
- provide assurance that the project can progress safely to the next stage of development or implementation.

The goal is to embed regular peer review (and through it the excellence in behaviour it encourages) in departments' project management cultures. This will take time to achieve – perhaps two to three years. It will be essential for the OGC to be actively involved in providing advice and support, and brokering resource, for reviews of major projects and ensuring peer review is integrated into the gateway approvals process in a seamless way.

This process model has been designed to strike a balance between the need for peer reviews and the wide variety of project and programme life cycles that exist across Government. For this reason we have identified three points in the project life cycle where peer reviews should take place; but we have supported this with guidance on other points that occur in some types of project where a peer review would add value.

There is an important distinction to be made between the preferred use of peers to review projects and the appointment of management consultancies to carry out external reviews. The process described here emphasises the need to grow internal expertise and, while recognising distinct skills shortages, introduces a mechanism for its exchange across Government and the use of private sector experience. Where expertise is not available within Government the use of consultants is appropriate.

B2. Why are peer reviews necessary?

Peer review combines the benefits of independent assurance and increased knowledge transfer across the organisation in one process.

B2.1 Knowledge transfer

The review of major Government IT projects has shown, and other research confirms, that the lessons for successful project delivery in Government are often not learned from one project to the next. The Public Accounts Committee report on IT projects in Government (published January 2000) pointed up the number of studies published into IT project failures in Government which highlighted mistakes that continue to be made. Peer review will allow for the knowledge and skills of individuals who have already experienced the types of issues likely to be faced in framing and delivering projects to be applied across Government. It will also encourage this pool of knowledge to grow.

B2.2 Independent assurance

The owner of any new project will naturally try to structure the team to make the most effective use of the skills available to them. The addition of an independent review on behalf of a project's authority will give them independent assurance at critical stages in a project's lifecycle. It will also provide additional assurance that subsequent decisions are based on sound information and that best practice is being applied. As well as reducing the risk of project failure, the peer review process should consider the wider business change being supported by the project, the likelihood of achieving the projected business benefits and the long-term robustness of the requirement. Challenging deadlines and objectives are often imposed on project teams. Independent peer review should alert a project authority where the risks associated with this are unacceptable.

In the course of the review of major Government IT projects, the review team has spent a considerable amount of time reviewing and assisting pending and ongoing projects with matters of project governance. This independent scrutiny of projects at the pre-contract stage has demonstrated the value of objective review.

B3. What are the criteria for peer reviewing a project? At what levels would it be reviewed?

The principle of peer review is sound almost irrespective of scale, funding and supply models, or complexity of project. Of course the depth, frequency, reporting line and terms of reference for the review must be proportionate to the scale or complexity of the project. For example, a major cross-cutting project with stakeholders from different departments and relying on emerging technology will

require a different and more resource-intensive approach to an internal agency development using proven technology.

The Project Profile Model (Annex C to this report) shows the criteria that should be considered when assessing the applicability and type of peer review. A scoring mechanism is described to guide decision making.

B4. When should peer review happen for maximum benefit?

Peer review scheduling should be related to key stages in a project's lifecycle, in particular those that might have an impact on the delivery of business benefit. The stages set out below have been identified as particularly benefiting from peer review.

It is important that a balance of rigour and brevity is attained such that project assurance is achieved, without incurring delays to project implementation. Interim peer reviews carried out on a selective targeted basis may simply require short interviews with business sponsors, users and project managers plus a brief examination of key documents. This type of review could be as short as one week. Developments undertaken in a modular or incremental manner may require even shorter, focused, reviews proportionate to the scale of the development. A recommended maximum duration for all types of peer review is three weeks. If the timing of the peer reviews is planned ahead to interleave with the project gateways, the necessary documentation prepared in advance and made readily available, project delays should be avoided. A small amount of time invested in peer review may save considerable delays or re-starts later.

This review has shown the advantages associated with breaking down major projects, wherever possible, into smaller modules capable of delivering incremental capability enhancements. The number and frequency of reviews should reflect this, but as all projects must go through the following stages, they should be regarded as the minimum and mandatory. **At each stage after initiation the team reviewing it must challenge the project to demonstrate that the original business benefit claimed is still likely to be achieved.**

B4.1 At project initiation

This stage is broken down into two elements, which should be short and consider the business case and procurement strategy separately. This split ensures that the procurement strategy is a function of the business case and not vice versa.

B4.1.1 After the business case has been prepared
This is after a business need has been identified and before a development proposal is put before a Projects Review Board, Executive Authority or similar group.

Typical questions to be addressed at this stage include:
- Is it clearly articulated how the project will deliver agreed business goals, and how it supports wider business change?
- How does the project reflect overarching business and IT strategies (including, for example, the e-government Strategy and *Modernising Government* agendas)?
- Are all the likely stakeholders identified?
- Are the scope and requirements specification sufficiently clear and unambiguous?

- Have the overall scale, ambition, timescales, impacts of legislation or other policy issues affecting the project been considered?
- Are planning assumptions agreed (e.g. on resources, team competencies, dependencies, etc.)?
- Is the organisation capable of delivering the next stage?

Suggested skills needed: Cost/benefit evaluation, business case presentation, business change management, project management.

B4.1.2 After a procurement strategy has been defined
This review should take place prior to an OJEC notice being issued. It should be much briefer than other reviews in that it should concentrate on supply issues only.

Typical questions to be addressed at this stage include:
- What are the plans to ensure that all potentially appropriate sources of supply and procurement method (e.g. PFI, 'traditional' procurement, etc.) are investigated?
- Is there a sound knowledge of the existing and potential supplier base?
- Have constraints that should be applied to the selection of potential suppliers been explored (e.g. advice from OGC or other departments that have undertaken similar procurements)?
- Has sufficient consideration been given to breaking the project down into smaller modules, or carrying out the development in an incremental manner?
- Where appropriate, have prototyping, Rapid Application Development and other development approaches been considered?
- What project metric tools and measurements have been considered?

Suggested skills needed: Procurement strategy experience, project and programme management, knowledge of supplier base, experience in framing requirements (including OJEC notice).

B4.2 Prior to final investment decision (pre-contract)

This may be before placement of a work order with an incumbent supplier, or at preferred bidder stage and before award of contract to a preferred supplier. It is important that the review team does not participate in the actual supplier selection decision, but focuses on the selection process employed.

Typical questions to be addressed at this stage include:
- Is there an overall business case (which contains both the IT system and any other business components) and is the original projected business benefit still likely to be achieved?
- Is it clear how the proposed solution will deliver the business change described in the business case?
- Has the process for invitation to tender or placing the contract followed the departmental/Government procurement/sourcing strategy and, where applicable, Treasury Taskforce procurement guidance? (Note that the review will examine procurement processes, but not be involved in any award decisions.)
- Has the preferred supplier produced credible plans for both development and implementation?
- Is the client clear about demarcation and understanding of responsibilities between client and supplier, in addition to any likely contractual obligations?

- Is the cost/benefit case sound at that point in time and a process for measuring benefit agreed?
- Are risk management, issue and change (technical and business) plans and processes defined?
- Have major risks associated with project resourcing and funding, team competencies, legislation or technical dependencies been identified and owners assigned?

Suggested skills needed: Cost/benefit and business case evaluation, contract negotiation, project planning, resource planning, supplier relationship management, service level definition, design and build skills, architecture planning. Independent specialists as appropriate (e.g. as used for pre-contract PFI reviews).

B4.3 Prior to implementation

At this stage, pressures on key members of a project team to 'deliver' quickly are acute. However, experience of past projects has shown this to be the most critical stage in protecting existing services as well as successfully delivering new ones. A brief but focused review at this point (after business assurance testing and prior to roll-out or release into production) must challenge whether the solution delivered is robust and whether the organisation is ready for the business change that will inevitably accompany the system implementation.

Typical questions to be addressed at this stage include:
- Is the original projected business benefit still likely to be achieved (in the context of the business change programme that the system is to support)?
- Has all testing, for example business integration or user acceptance testing, been satisfactorily completed as planned?
- Have all affected parties agreed training, communication, rollout, production release and support plans?
- Are workable business contingency or reversion plans in place and tested?
- If there are unresolved issues, what are the risks of implementing when planned as opposed to delaying?

Suggested skills needed: Cost/benefit and business case evaluation, implementation planning, training, communication, contingency planning, risk analysis, service delivery and management, application of technology.

As part of their preparatory work, the review team should complete a checklist of questions relevant to the project and stage being reviewed.

IT-related projects are developed and evolve in a variety of ways across the spectrum of government departments. For example, where a programme of change involves a series of independent but interlocking modules or the funding model includes significant supplier payments linked to stages, it may be appropriate for peer reviews to be held at relevant junctures between these modules. For this reason, whilst the three stages identified above are mandatory, the exact number of **additional** reviews will depend on the lifecycle stages, and the complexity, sensitivity and significant milestones of the project being undertaken. The mandatory peer reviews are 'snapshots' in time, albeit at important stages. They must be regarded as complementary to other ongoing project governance processes in place, not as substitutes for them. For example, with regard to project management

methodologies, the peer review should determine whether diligence had been shown, not duplicate the checks in the methodologies.

Private sector peer review models are usually linked to 'gateways' whereby the review must satisfy specific criteria before the next stage of the project can commence. Similarly, the Gershon report describes 'gates' between phases. Output from peer reviews will be invaluable in informing the decisions taken by 'gatekeepers'.

B5. Who should conduct peer reviews?

One of the strengths of peer review in the private sector, and one of the drivers for its success, is that it employs reviewers from within the organisation or group of organisations. The peers' background in the same or a similar organisation also assists their understanding. Therefore the presumption for Government projects should be that, where possible, peer reviewers should be drawn from within the Government community.

Where this is not possible for resource reasons (e.g. because a number of projects across Government might be in need of review in a similar timeframe), or perhaps because the project under review concerns some aspect of the business with a close analogue in the private sector, reviewers from private sector organisations could supplement the team. **Consultants should only be used in cases where resource constraints mean that the appropriate skills cannot be drafted in from elsewhere in Government or the private sector.** The exception to this will be for OGC-led reviews, where the centre will engage at least one individual from the private sector to enhance the independence of the review. However, the team will still contain significant representation from Government.

This multi-sourcing approach will help overcome resistance to a 'new' process, and so help achieve the desired goal of embedding peer review and the behaviours it encourages in departmental cultures.

Team composition is key. In principle, skills employed on peer review teams should mirror those employed at that particular stage of the project and anticipated for the next stage.

Peer review teams will need to:

- have the **right mix of both technical and managerial skills:** see suggestions for skills needs above;
- have the **right mix of backgrounds:** they should be drawn from as many diverse parts of the 'organisation' – department, Government or private sector – as possible to cross-fertilise ideas (in practice the range of necessary skills is likely to drive this). They should also come from a variety of project environments;

- have **legitimacy:** individuals must be acknowledged as expert practitioners in their field by their peers. Independence from the project team or management is vital for the success of peer review. An individual must head the team with sufficient credibility in the eyes of the project sponsor such that recommendations will be acted upon. Similarly, sponsors should be sufficiently aware of the purpose of peer reviews to ensure they are given every support, and be able to call a review whenever they think appropriate, outside of the recommended intervals; and

- offer a **development opportunity:** individuals and their parent organisations must be able to benefit from exposure to the sponsoring organisation (department or business unit within a department). This needs to be recognised, encouraged and utilised by all involved in the process.

B6. How does the peer review team maintain independence and get its mandate?

The sponsorship for the peer review process is critical for its success. The review team should report to, and have the authority of, the Senior Responsible Owner (SRO) for the project (see Section 2 of the main report for the SRO responsibilities). The terms of reference for the review should be presented to and agreed with the SRO and the review findings and recommendations reported back. A framework for the stages associated with each type of peer review is shown at the end of this annex.

B7. What is the role of the Centre – in terms of brokering, monitoring, and providing resources?

OGC will have responsibility for:

- **brokering** assembly of review teams and **providing resources** for projects reviewed with central involvement, or where the organisation does not have suitable experience in-house;
- **monitoring progress** across Government, **gathering summary information and feeding back** results and best practice to departments; and
- **ownership** of the peer review framework.

This is explained in more detail below.

B7.1 How will the review teams be sourced?

Projects of lowest 'risk', as defined by the Project Profile Model criteria, should be reviewed internally, and those of more significant 'risk' should be reviewed by teams of individuals drawn from other government departments, where there is capacity. In the case of highest risk projects, the review should be undertaken by a team drawn from across Government, but with an individual or individuals nominated by OGC to lead the team, including someone from a private sector background. Where specific skills are not available from across Government or the private sector, for example contract or legal expertise for pre-contract reviews, consultants should be used.

B7.2 What are the outputs from peer reviews?

In all cases, the review team will be expected to produce a **brief** report. Given the short timescales for the reviews, it is likely that there will also be a range of other outputs such as a list of recommendations or conditional qualifications to proceed.

B7.3 Who takes project decisions?

In the majority of cases the responsibility for project decisions remains with the department or agency: decisions resulting from peer review reports are taken by the SRO. For the largest projects, OGC will lead the peer review process and will therefore be part of the group that reviews the findings (along with the SRO, project authority and other stakeholders).

B7.4 How will OGC assist with resourcing and establishing reviews?

In order to help build teams to review projects, the Centre will need to facilitate contacts between departments and help to secure the release of the right individuals. A priority for OGC will be to audit what skills appropriate for peer reviews there are in Government and where they are located (a 'skills map').

In addition, OGC should maintain a small pool of individuals from government departments and the private sector with complementary skills to act as part of review teams on OGC-led reviews. They should also provide a corporate resource for other reviews if necessary. Peer reviewing should be part of a package of knowledge-based responsibilities that these individuals at the Centre should have. The individuals would be on short (6–12 month) secondments, to keep their skills fresh and ensure that the benefit of their experience flowed back into departments/their parent organisation. The proposed private sector involvement is consistent with Government policy towards incorporating this type of experience in public sector projects.

The Centre will also be responsible for maintaining a contact list of other private sector companies that could provide individuals for brief periods for individual reviews. It will facilitate quick call-off arrangements with a number of consultancy firms which can supply necessary skills where these are not available from within Government. Finally, it will need to organise mentoring for peer reviewers from across Government – many of the people with the necessary skills may not have worked in a peer review context before.

It should be noted that a fuller analysis of the resource needed at the Centre is required to accurately determine the contribution from departments, and the mechanism and incentives for obtaining the resource.

B7.5 How will the Centre monitor progress and promote information sharing?

OGC will need to monitor progress on reviews where it is involved in providing resource or expertise, and take the lead in building a knowledge network to support the peer review process. Further detail is included in the main report (Section 10 'Learning Lessons').

B7.6 Ownership of the peer review framework

It is essential that OGC own the process and criteria described for the following reasons:

- To assess the effectiveness of knowledge transfer between projects.
- To amend and update the scoring mechanism for categorising projects.
- To identify resource constraints and future requirements.
- To ensure that the process is effective and that it is benefiting the projects, individuals and departments involved.
- To confirm that lessons learnt are applied across government so that better performance is achieved overall.

B8. How does this compare with/draw on private sector/overseas experience?

There are a number of examples of private sector peer review processes in use. The rationale for peer review above takes the best of these ideas and applies them to the context of Government. For example, whilst it may be common for regular interchange of people and ideas across business streams within a company, this does not happen naturally between government departments. The very fact that this is unusual enhances the appropriateness of peer review for projects containing a significant IT element.

Overseas models reviewed include:

B8.1 The **New Zealand Inland Revenue Department** has successfully used peer review at pre-contract stage. In this instance they used individuals from overseas government departments who had experience of projects similar to that being undertaken.

B8.2 The **US Government** IT Review Board (ITRB) recommends peer review – in its terminology 'Independent Verification and Validation' (IV&V) – and provides the following in its documented guidance:

- "For executive leadership, IV&V enhances the project's accountability and helps raise its visibility. For project managers, IV&V can provide unbiased perspectives and expertise on specific project elements. Perform periodic cost-benefit analyses and life cycle cost estimates. Use this information for go/no-go decisions at major system milestones and for technology portfolio investment decisions. In the majority of project assessments ITRB has recommended that organisations immediately establish a process for independent validation and verification and that executives explicitly consider IV&V recommendations when making decisions"

B8.3 The **Canadian Government** also uses Independent Validation Test (IVT) teams. In their case IVT primarily reviews plans and performs independent reviews of systems prior to acceptance testing. Whilst independent, IVT differs from our proposal in that its scope is limited to independent software testing rather than an overall review of the project.

B9. Peer reviews – using the Project Profile Model

B9.1 Specific objective of using the Project Profile Model for peer reviews

To provide a standard set of high-level criteria against which project sponsors can assess the intrinsic characteristics of a proposed project, in order to establish an appropriate peer review structure.

The Project Profile Model can be found at Annex C of this report.

B9.2 Method

For peer review purposes the SRO is required to categorise the project under one of the following three headings:

- **Locally managed** – peer reviews to be authorised and resourced internally within the organisation.
- **OGC supported** – peer reviews to be authorised within the organisation but review team leader to be from another 'contributing' department with support for the process provided by OGC.
- **OGC led** – peer reviews to be led and partly resourced by OGC.

B9.3 Model scoring

Total score 20 or less suggests the peer review can be locally managed.

Total score in the range 21–40 suggests the peer review may need to be supported by OGC.

Total score 41 or more suggests the peer review should be led by OGC.

These scores are indicative, and will require validation and refinement by OGC once a number of peer reviews have been undertaken and assessed.

It is important to stress that the assessment model is designed *as a guide* to help the project sponsor make their assessment. There may be issues associated with a particular change that are not explicitly covered by the model but which affect the assessment. In particular the sponsor may be aware of other factors that increase the risk to the project and therefore warrant a higher rating. If in any doubt, sponsors should discuss this with OGC.

B10. Peer review – summary of responsibilities and activities

B10.1 Peer review initiation for all categories of projects

Activity	Owning Department	Other Departments	OGC
Identify and assess projects.	As part of its own project initiation process: • uses Project Profile Model and guidance on modular development to help determine project risk profile and identify appropriate control mechanisms; • notifies OGC of projects that require central involvement, and the likely additional stages at which reviews will be carried out.	N/A	N/A
Register OGC supported and OGC led projects.	Advises OGC of: • all projects assessed as requiring OGC support for the peer review; • all projects assessed as requiring OGC to lead the peer review.	N/A	• Verifies the assessment. • Registers the project. • Initiates those peer reviews that OGC are to lead.

Having established the need for a peer review and categorised the project according to the scoring mechanism in the Project Profile Model, the subsequent processes are shown in the following table.

B10.2 For 'locally managed' projects

- The elapsed time between agreement of terms of reference/identification of resource and final reporting should be as short as possible, and not more than three weeks for the most complex projects. As a comparison, a major oil company requires its peer reviews to complete within eight working days. Reviews of developments undertaken in a modular or incremental way will necessarily be shorter and more focused, proportionate to the way the project is structured.

- Having had notice of a peer review, the project team will be required to ensure that the relevant documentation and staff are available for review. Failure to produce the necessary information should be reported in the review findings.

Activity	Owning Department	Other Departments	OGC
Establish 'locally managed' peer review roles and responsibilities.	As part of its own project initiation process: ● agrees number and timing of internal peer reviews for the project, agrees resources, terms of reference, objectives and outputs.	N/A	N/A
Manage 'locally managed' peer review process.	As part of its own project management process: ● appoints the review team leader; ● identifies review team skills required; ● allocates resources; ● agrees timetable and duration of the review appropriate to the scale of development (recommended maximum of 3 weeks); ● agrees terms of reference (including key documentation to be reviewed and key staff to be consulted). The review team: ● assembles review documentation; ● meets key individuals; ● documents emerging findings; ● reviews findings with project Senior Responsible Owner; ● presents findings, confidence level for the delivery of projected benefits and recommendations to the SRO and any other overseeing departmental authority.	N/A	● Advises on sources of alternative expertise where the department cannot fully resource the review team on its own.

B10.2 For 'locally managed' projects – contd.

Activity	Owning Department	Other Departments	OGC
Sign-off 'locally managed' peer review.	As part of their own project assurance process the SRO and project authority: ● receive the peer review report from the team; ● consider the peer review findings, and take the appropriate actions, including gateway sign-off where relevant.	N/A	● Receives periodic updates of peer review outcomes (see B10.5 'Building a peer review knowledge base').

B10.3 For 'OGC supported' peer reviews

Activity	Owning Department	Other Departments	OGC
Agree 'OGC supported' peer review roles and responsibilities.	The project authority within the owning department: ● agrees number and timing of centrally supported peer reviews for the project; ● drafts terms of reference for each review at appropriate time; ● identifies the skills required for the review; ● identifies an individual from another department to lead the review (using OGC to broker as necessary); ● agrees terms of reference, objectives and outputs with the review team leader.	● Make staff available if requested.	● Brokers resource requirement if necessary.

B10.3 For 'OGC supported' peer reviews – contd.

Activity	Owning Department	Other Departments	OGC
Lead 'OGC supported' peer review.	N/A	The review team leader from the contributing department: ● confirms review team skills required (see guidance); ● identifies resources (using OGC to broker as necessary); ● agrees timetable (recommended maximum of 3 weeks); ● agrees terms of reference (including key documentation to be reviewed and key staff to be consulted), objectives and outputs. The review team: ● reviews documentation; ● meets key individuals; ● documents emerging findings; ● reviews findings with SRO.	● Advises on the peer review process.
Reporting findings from 'OGC supported' peer review.	As part of their own project assurance process the SRO and project authority: ● receive the peer review report from the team; ● consider the peer review findings, and take the appropriate action; ● document decisions taken as a result of the peer review and notify the Centre.	The review team: ● presents findings, confidence level for the delivery of projected benefits and recommendations to the SRO and relevant departmental authority.	● Receives outcome of peer review. ● Documents and disseminates lessons learned.

B10.4 For 'OGC led' peer reviews

- For the largest projects as defined by the Project Profile Model, OGC will lead the peer review process
- The elapsed time between agreement of terms of reference/identification of resource and final reporting should be as short as possible, and not more than three weeks for the most complex projects. As a comparison, a major oil company requires its peer reviews to complete within eight working days. Reviews of developments undertaken in a modular or incremental way will necessarily be shorter and more focused, proportionate to the way the project is structured.
- Having had notice of a peer review, departments will be required to ensure the relevant documentation and staff are available for review. Failure to produce the necessary information should be reported in the review findings.

Activity	Owning Department	Other Departments	OGC
Agree 'OGC led' peer review roles and responsibilities.	● Using the Project Profile Model and guidance on modular developments, agrees number and timing of OGC led peer reviews for the project with OGC. ● Agrees terms of reference with the OGC and review team leader.	The review team leader: ● agrees terms of reference; ● confirms review team skills required (see guidance notes). Identifies resources; ● agrees timetable (recommended maximum 3 weeks); ● agrees terms of reference (including key documentation to be reviewed and key staff to be consulted). The review team: ● reviews documentation; ● meets key individuals; ● documents findings and recommendations; ● prepares presentation and report to be given to the SRO, relevant departmental authority and OGC.	● Agrees number and timing of OGC led peer reviews for the project with the owning department. ● Selects the review team leader. ● Jointly with the owning department, drafts terms of reference for each review at the appropriate time. ● Agrees the skills required for the review (see guidance notes). ● Agrees terms of reference with the owning department and the review team leader.

B10.4 For 'OGC led' peer reviews – contd.

Activity	Owning Department	Other Departments	OGC
Reporting findings from OGC led reviews.	As part of its own project assurance process the SRO and project authority: ● receives the peer review report from the team; ● considers the peer review findings, and takes the appropriate actions; ● documents decisions taken as a result of the peer review.	The review team: ● presents findings, confidence level for the delivery of projected benefits and recommendations to the SRO, relevant departmental authority and OGC.	● Receives peer review report from the team. ● Considers the peer review findings. ● Documents and disseminates lessons learned.

B10.5 Building a peer review knowledge base

Having developed a mechanism to allow independent assurance at key project stages, it is important that the lessons from this are collated, analysed and re-used. The following knowledge base proposal supplements the individual knowledge transfer from which the review participants will have benefited.

Activity	Owning Department	The Centre
Maintenance of 'OGC supported and led' peer review roles, responsibilities and outcomes	● Updates OGC monthly about the status of all centrally supported peer reviews. ● Collates summary information (six monthly) on locally managed peer reviews. ● Shares peer review lessons with OGC and contributing departments.	● Builds and maintains a knowledge base of peer review skills, personnel, experience, availability (see main report Section 9). ● Builds and maintains a knowledge base of 'OGC led' and 'OGC supported' projects. ● Brokers resources from across Government and private sector firms to support the peer review process. ● Establishes call-off contracts to supplement the pool of peer review skills. ● Provides advice, guidance and mentoring for inexperienced reviewers. ● Co-ordinates lessons learnt initiatives. ● Communicates experience across Government. ● Maintains and updates the overall process.

ANNEX C – Project Profile Model

Purpose of the model

C1 The Project Profile Model is referred to in the Sections on Project Management, Risk Management, Procurement, and Learning Lessons. It is intended to provide a standard set of high-level criteria against which Senior Responsible Owners (SROs) can assess the intrinsic characteristics and degree of difficulty of a proposed project, in order to establish the appropriate:

- control structures (including peer review);
- risk profile and corresponding risk strategy; and
- design approach (e.g. modularity).

Its use across Government will also allow the Office of Government Commerce (OGC) to begin to gather benchmarking information about projects on a consistent basis.

Status of the model

C2 It is proposed that OGC pilots this model on a range of projects with a view to placing an updated version on the Government Secure Intranet (GSI) as a diagnostic tool available to all SROs and project managers. It is not an exhaustive project risk analysis model, although it could form the basis of a fuller project risk analysis. The model requires the SRO or project manager to assess the project against a number of criteria, each of which is weighted to provide an overall score for the project. These scores will need to be tested and reviewed by OGC, but our current estimate is that:

- total score less than 20 suggests the project is relatively low risk. Peer reviews and other project controls are likely to be managed from within the sponsoring department;
- total score in the range 21–40 suggests the project is higher risk. Peer reviews should involve other departments or agencies and may require support from OGC and/or CITU; and
- total score 41 or more suggests the project is high risk and will require OGC and/or CITU involvement.

C3 However it is important to stress that the assessment model is designed *as a guide* to help the project sponsor make their assessment. There may be issues associated with a particular change that are not explicitly covered by the model but which affect the assessment. In particular the sponsor may be aware of other factors that increase the risk to the project and therefore warrant a higher rating. If in any doubt, SROs should discuss these issues with OGC.

Business Impact

Criteria	Comments	Value	Score
Total value of the business benefits in £.	Total (as opposed to annual) value, calculated in line with HM Treasury guidance.	Up to £10m	1
		£10m to £100m	2
		More than £100m	4
Total value of the business costs in £.	Total (as opposed to annual) costs, calculated in line with HM Treasury guidance. Excludes IT costs which are covered later.	Up to £5m	1
		£5m to £50m	2
		More than £50m	4
Number of individuals affected.	Refers to internal personnel within Government – i.e. includes technical and business staff and users, but excludes citizens, suppliers, etc.	Less than 1,000	1
		1,000 to 10,000	4
		More than 10,000	6
Impact on business processes (includes changed processes).	Refers to the impact that the project will have on the organisation (both during development and after implementation). Allocate a score between 1 and 6.	No significant change to organisation.	1
		Major new legislation or significant new processes requiring new skills, new organisation and major new procedures.	6
Impact on Government services at implementation.	Refers to the impact that the project will have outside the organisation, for example on the public and businesses (both during development and after implementation). Allocate a score between 1 and 6.	Impact contained internally within the organisation.	1
		Impact potentially disruptive to large sectors of the public and business.	6

Business Impact (continued)

Criteria	Comments	Value	Score
Impact on other projects and changes.	The degree to which the project is dependent on and connected to other projects and changes. Allocate a score between 1 and 8.	Stand alone project.	1
		Supporting wider departmental change initiative.	3
		Supporting cross-cutting change initiative.	6
		Supporting EU or 3rd country initiative.	8

Technical Impact

Criteria	Comments	Value	Score
Total IT costs.	Total (as opposed to annual) IT costs, calculated in line with HM Treasury guidance. For commercial contracts this will be the total charge to department rather than cost to supplier.	Up to £10m	1
		£10m to £100m	2
		More than £100m	3
Number of IT practitioners (including internal and out-sourced suppliers).		Up to 50	1
		50 to 100	2
		More than 100	3
Degree of innovation.	The extent to which the project involves innovative solutions, and the level of familiarity and experience available. Allocate a score between 1 and 4.	Stable, proven technology, widely implemented, familiar to organisation and suppliers.	1

Technical Impact (continued)

Criteria	Comments	Value	Score
		Technology or scale of its planned use unproven, and organisation and some suppliers inexperienced in its application.	4
Impact on legacy systems and data.	The degree to which the project will need to develop interfaces to existing systems and data stores. Allocate a score between 1 and 4.	Greenfield development.	1
		Extensive data conversion, migration and integration issues, and bespoke interfaces to existing applications and platforms needed.	4
Scope of IT supply. (Note: for this criterion score for each element, i.e. may be cumulative.)	The range of activity that will be undertaken by the IT supplier, and the extent to which these will impact on the business processes of the organisation.	Deliver infrastructure.	1
		Deliver packaged software.	1
		Deliver bespoke application.	3
		Deliver new business processes.	3
		Deliver package with significant bespoke elements.	4
		Transfer of IT staff.	4

Client/Supplier Arrangements

Criteria	Comments	Value	Score
Client-side organisation.	The complexity of the client-side arrangements. Allocate a score between 1 and 4.	Single business stream within department.	1
		Cross-cutting involving multiple departments.	4
Supply-side organisation.	The complexity of the supply-side arrangements.	Single internal.	1
		Single external.	2
		Multiple with prime contractor.	3
		Multiple without prime contractor.	4

Risk Assessment Strategy

C4 The Project Profile Model may be used as a starting point in determining the risk profile and corresponding risk strategy but there will be other factors that need to be taken into account. Factors identified during this review include:

- ratio of business benefit to cost – high ratio may merit more risk than low;
- client-side skills in business process modelling, project management, etc;
- capacity of organisation to embrace/implement the change; and
- degree of technical complexity.

C5 Other factors for consideration during the assessment of risk include:

- the effect of Government priorities on the allocation of resources to the project;
- externally imposed time delays, such as waiting for requirements from other departments;
- capability of the supplier in terms of technology, expertise, skills, etc;
- inexperience of government department in projects of particular size or complexity; and
- inadequate reliable estimates, feasibility studies, user trial programmes, or other similar data upon which to base a risk assessment.

ANNEX D – Business Case Model

The purpose of this model is to provide a step by step guide to the production of a business case that identifies the total cost of developing a business system, including any associated IT development costs. It is constructed from a business perspective and should be owned and managed by the business, through the appointment of a Senior Responsible Owner (SRO). The SRO should be supported by a Business Project Manager who is responsible for leading the INITIATION and FEASIBILITY stages and for the delivery of the associated products as shown below.

The model illustrates the three key steps which should to be in place to provide a more robust business case on which to base the decision to take a project into the development stage. These are scope investigation, options investigation and project definition. This approach allows for better management of the requirement throughout development. Approval to proceed to the next step/stage must be obtained through the appropriate formal departmental approval process.

Initiation Stage

Scope Investigation

Activity: **Provide Investigation Brief**

- Identify outline business objectives.
- Establish outline costs, dependencies and risks.
- Indicate anticipated benefits and applicable timescales.
- Consider Private Finance Initiative as a funding mechanism.
- Provide other information where appropriate, including fit with other projects and business architecture.

Deliverable: **Investigation Brief**

Activity: **Plan and cost Investigate Options Step**

- Review investigation brief.
- Plan resource needs and timetable.
- Ascertain costs and availability (obtain resources and organise team).

Investigation Approval Point

Feasibility Stage

Investigate Options

Activity: Determine stakeholder viewpoints

- Elicit views on business need and requirement.
- Establish consensus between stakeholders.
- Consult external stakeholders as necessary (e.g. HM Treasury, suppliers)
- Keep them informed.

Activity: Identify departmental (including broader Government) strategies such as the e-government Strategy

- Identify:
  - fit and relevance to business architecture/programme roadmap/departmental strategies, and IS/IT strategies;
  - spending assumptions.

Activity: Analyse current business and IT solutions

- Analyse:
  - existing situation and problems, including HR factors;
  - current volumes of business and IT key features;
  - inputs/outputs/transactions.

Activity: Confirm scope and objectives

- Refine business need, scope, objectives of proposed development.
- Agree with sponsor.

Activity: Analyse business needs

- Analyse for proposed system:
  - business events/processes/periodic/cycle;
  - information needs and volumes;
  - security and business continuity.
  (Concentrate on what is needed, not how to meet that need.)

Activity: Analyse business and technical options

- Identify and assess:
  - business options including cost and feasibility of HR options;
  - IT opportunities and constraints;
  - early development opportunities;
  - cost drivers, key issues and assumptions.
- Ascertain:
  - high level business/IT design;
  - outline costs/benefits/impacts/risks on each major option.
  (Concentrate on how to meet business need.)

Investigate Options

Deliverable: **Investigation Report**

Activity: **Select option(s)**

- Review with major stakeholders and sponsor.
- Agree direction on business and IT options with sponsor.

Activity: **Plan and cost Project Definition**

- Plan resource needs and timetable.
- Ascertain costs and availability.
  (Get resources and organise team.)

Options Approval Point

Project Definition

Activity: **Design business solution**

- Refine:
  – business design and requirement within selected option(s);
  – key issues and assumptions;
  – IT requirement.
- Analyse testing, assurance and implementation strategy.
- Draft/review and baseline business requirement product.

Activity: **Design technical solution**

- Refine IT system and architecture design within selected option(s).
- Draft/review high level technical design product.
- Produce/review supplier response to baseline business requirement if appropriate.

Activity: **Plan and cost business solution**

- Ascertain:
  – business costs/benefits/resource availability;
  – impacts/risks;
  – consult with contract management staff on supplier contractual costs;
  – draft business plans and business case.

Activity: **Review costs, benefits and plans**

- Reconcile business and IT designs and plans.
- Assess combined costs/benefits/resource availability/impacts/risks.
- Consult with contract management on IT development scheduling.

Activity: **Finalise business case**

- Agree any changes to baseline business requirement and high level technical design from review above and revise baselines.
- Finalise business case.

Project Definition – contd.

External Stakeholders
- Supplier
- HM Treasury

Deliverable: **Agreed Business Requirement**

Deliverable: **Agreed High Level IT Design**

Deliverable: **Business case**

Business Case Approval Point

The following pages show a template for producing a business case of the sort set out in this model together with other relevant deliverables.

Business Case Template – Contents

0   Document Control

This section describes what versions of the Business Case have been published, when, to whom distributed, current status, changes made and forecast.

0.1 Document History

Date	Version	Description	Sections Affected

0.2 Changes From Previous Version

0.3 Changes Forecast

0.4 Distribution Control List

No	Recipient	Office	Role

1   Introduction

1.1 Purpose of Document

A short description of the purpose of the document and what it is seeking, for example 'This document sets out a detailed Business Case for reorganising [business area]. It covers the preferred business and technical options and seeks project approval for the outline costs, timetable and scope identified.'

1.2 Approval

The appropriate approval authorities should be identified.

1.3 Related Documents

Any related documents that the Business Case refers to should be listed and, if appropriate, attached as Annexes to the case.

The following supporting document(s) is/are referred to within the Business Case.

- List documents

The following supporting document(s) referred to within the Business Case is/are attached at:

Annex	Document
List annex no.	List document(s)

2 Background and Need for Change

2.1 Background

Describe here the general context in which the Business Case is set. This should define the current business processes identifying shortcomings and/or anticipated problems.

2.2 Drivers for Change

Why change is necessary. Other business drivers indirectly associated with the proposed change should be brought out, identifying how the change will help to deliver benefits.

2.3 Progress to Date

If the Case is a result of an earlier business report, reference to that report should be included together with a brief summary of progress since publication.

2.4 Operating Costs

A very high-level statement of the current and future operating costs can be helpful at this point – it gives the reader an indication of the scale of the proposal that is under consideration.

3 Business Objectives and Requirements

3.1 Business Objectives

Set out a summary of the business objectives and main changes needed by the business in terms of procedures and systems. Identify any legislative imperatives and itemise the main objectives as separate points.

3.2 Business Requirements

The business design will have been outlined and the substance of the requirement identified to the level needed to demonstrate that a Business Case exists. It is not necessary to repeat that information here but rather provide a summary of the main requirement and attach the relevant documents as an Annex with appropriate cross references.

4   Description of Business, Technical and Procurement Options

Options will normally have been proposed in detail as a formal investigation report, which should be included as an annex and cross referenced accordingly. This section of the Business Case should therefore focus on the considerations given to such a report and the business conclusions arising from it.

It is not uncommon for there to be a number of options which will meet the business objectives. It is helpful at the outset to identify those which were considered and rejected, together with the grounds for rejection.

4.1 Do Nothing Option

It is important to consider separately the option of doing nothing/doing the minimum and the Case should include a fairly detailed description of what the results of this would be.

4.2 Option 1

There should, where possible, be at least two options remaining (in addition to 'do nothing') which meet the business need and these should be described in sufficient detail to be able to identify the advantages and disadvantages of each, as against each other.

4.3 Option 2

In some circumstances there may be only one viable option available but even here a comparison against the 'do nothing' must be made.

5   Investment Appraisal

This section analyses the costs and benefits of the viable options identified and should compare these against the do-nothing/do minimum benchmark and the likely consequences. Explain any conventions used and/or assumptions made in establishing costs and benefits.

Prepare Discounted Cash Flow statements (DCFs) on spreadsheets and attach to the case as annexes, also include a cashflow statement and an overview project plan.

5.1 Cost of Options

5.1.1 Do Nothing

5.1.2 Option 1

5.1.3 Option 2

5.2 Benefits of Options

5.2.1 Do Nothing

5.2.2 Option 1

5.2.3 Option 2

5.3 Security of Hardware

If an option includes the provision of computer hardware to an office, the Business Case must identify security arrangements which must be analysed and costed to safeguard the hardware.

6 Risk Assessment

Each option is subject to a risk assessment. Risk in this context can be defined as a potential event, either internal or external to the business, which if it occurs may cause an option to fail to meet one or more of the business objectives.

A risk has two aspects:
    a. expected likelihood (probability) of event occurring, and
    b. expected impact if it does.

A number of risks have been identified for the project. The major ones are detailed below, together with probability and impact.

| Area | Risk | Assessment Option 1 | | Option 2 | | Notes |
		Prob	Imp	Prob	Imp	
Change	Culture change required (e.g. working practices) Lack of motivation Management resistance Poor communication to appropriate staff					
Estimates	Use of untried methods Inadequate provision for training and education Inexperience with third party suppliers Economic or market changes					
Project	Time constraints Lack of staff experience and skills Dependence on new technology or methods Dependence on third party suppliers					
Operation	Threat to integrity of other business systems Poor security controls Lack of responsiveness to change Lack of support and maintenance					

All categories of risk must be identified, evaluated and, where appropriate, arrangements put in place to manage those with the highest priority.

Each potential risk should be evaluated for probability and impact and categorised using an A/B/C/D classification.

For probability, A indicates unlikely to occur, D very likely to occur. For impact, A indicates small impact, D indicates large impact.

The notes space can be used to:

- amplify the difference in the ratings between each of the options;
- highlight the critical risks; and
- highlight risks which may be transferred.

A common source of technical risks with an IT project is the supplier response.

6.1 Risk Assessment Summary

The results of the risk assessment should be summarised.

6.2 Conclusion

A conclusion should be drawn as to how options should be ranked according to the level of exposure to risk.

7 Conclusion

Here we are looking for a listing of the main pros and cons of each option based on the preceding material. The options should be ranked, with any caveats clearly stated. The recommended option should be clearly identified.

7.1 Do Nothing Option

7.2 Option 1

7.3 Option 2

7.4 Recommended Option

8   Implementation of Recommended Solution

8.1 Implementation Timetable

Outline the implementation timetable identifying major business milestones.

Timescale	Milestone

It should be stated that the implementation of this project will be managed in accordance with the authorised project management methodology.

8.2 Project Structure

The major project roles with associated responsibilities are:

Project Role/Member	Name	Office

A Project Evaluation Review will be conducted and this activity will be included in the project plan.

Appendix A – Glossary Of Terms

A glossary of terms and abbreviations should be included; if not, terms should be given in full and thereafter abbreviated.

Abbreviation	Term

Business Requirement

This is the main document used to arrive at cost/benefit figures and impacts/risks for the Business Case. It should therefore **only contain sufficient information to inform those decisions**. In small studies the document should be no more than a few pages. In larger ones it may run up to 100 items.

A generic product description for use as a starting point for specific business requirements is set out below.

Business Requirement Product Description

Purpose	- to confirm the scope of the business requirement; - to provide the information needed, at the right level, for costs/benefits/business impacts/risks/timescales, to be drawn up for the business case; - to provide a baseline requirement for further development should the business case be approved.
Composition	**Cover Page** – Document title, approval signatories **Contents Page** **Section 0** – Foreword and document control **Section 1** – Management summary **Section 2** – Background to requirement **Section 3** – Business objectives **Section 4** – Scope of the requirement, departmental context in which it is set, and associated departmental strategies **Section 5** – Legislative changes to be taken into account, if any **Section 6** – Relationships/dependencies with other projects, and impact/interaction with other systems **Section 7** – Business design envisaged including how the work flowing from the requirement will be organised in the department/agency **Section 8** – Business processes, highlighting differences between IT and manual processes, and bringing out key volumetrics, non-functional requirements, and issues and assumptions **Section 9** – Main business impacts; for instance highlight proposed HR strategy, training strategy, new or amended forms needed **Section 10** – Communication, testing, assurance and implementation strategy **Appendices** – Initial system security policy, metrics model (if produced), options considered and rejected with reasons, controlled circulation list
Format	Text and models
Derivation	Investigation brief and investigation study
Quality Criteria	1. Produced in accordance with time, budget and specification parameters agreed with project manager. 2. SRO and board approval. 3. Fit for purpose.
Quality Method	This will vary dependent on the size of the project, from paper review to peer group inspection. Once the baseline is fixed change control mechanisms should be set up to authorise agreed changes.

Investigation Report

The investigation report will be a high-level assessment of the business needs and the viable opportunities to meet them. This will include the business and technical options considered and the selection/rejection reasons, the costs/benefits and the outline IT architecture.

It will be pitched at a level that will be sufficient to allow the SRO to make a decision on a particular option and facilitate the production of a business case.

The investigation report will be the document which pulls together all the various aspects of the investigation study, including the relevant documents to support the report, e.g. the business requirement, the IT proposal, the commercial impact, etc.

A generic product description of an investigation report is set out below.

Investigation Report Product Description

Purpose	- to confirm the business scope and background; - to confirm the baseline high-level business requirement; - to confirm the current business processes, problems and opportunities; - to confirm the business objectives and cost drivers; - to provide the working assumptions and open issues; - to provide a view on the options available with cost/benefit/ business impacts/risks/timescales appraisals; - to make recommendations on a particular option; - to provide the information needed, at the right level, for costs/benefits to be drawn up for the Business Case.
Composition	**Cover Page** – Document title, approval signatories **Contents Page** **Section 0** – Foreword and document control **Section 1** – Management summary **Section 2** – Background to requirement **Section 3** – Business objectives **Section 4** – Scope of the requirement, departmental context in which it is set, and associated departmental strategies **Section 5** – Legislative changes to be taken into account, if any **Section 6** – Relationships/dependencies with other projects, and impact/interaction with other systems **Section 7** – Business design envisaged including how the work flowing from the requirement will be organised in the department/agency **Section 8** – Business processes, highlighting differences between IT and manual processes, and bringing out key volumetrics, non-functional requirements, and issues and assumptions **Section 9** Business and technical options considered and the selection/rejection reasons, including the costs/benefits. The outline IT architecture

Investigation Report Product Description – contd.

Composition (contd.)	**Section 10** – Main business impacts; for instance highlight proposed HR strategy, training strategy, new or amended forms needed, and impact on other offices **Section 11** – Outline implementation plan **Section 12** – Communication, testing, assurance and implementation strategy **Appendices** – Initial system security policy, cost drivers (if produced); High-level Business Requirement (HLBR); the IT Proposal; the contract management commercial impact
Format	Text and models
Derivation	Investigation brief and high-level business requirements and IT proposal
Quality Criteria	1. Produced in accordance with time, budget and specification parameters agreed with Project Manager. 2. SRO and approval board approval. 3. Fit for purpose.
Quality Method	This will vary dependent on the size of the study, from paper review to peer group inspection. Once the baseline is fixed, change control mechanisms should be set up to authorise agreed changes.

ANNEX E – Modular and Incremental Approaches to IT Delivery

Background

E.1 Substantial research, both in the UK and overseas, has found that projects that attempt large-scale change have a much lower probability of success than those attempting less ambitious change. Although these findings are not surprising, they are at the heart of an approach to change programmes that has the potential to significantly improve the success rate of major IT projects. This approach, which has been used successfully across both public and private sector change programmes, breaks down a large programme of work into smaller components, but retains a holistic approach to the overall programme. The subsequent delivery of these smaller components will:

- be easier to manage;
- be easier to implement;
- offer more options for contingency; and
- be more likely to accommodate changes in technology, or in the political or financial environment.

E.2 As each component is much more likely to succeed, the overall objectives of the whole change programme are more likely to be realised.

> **Evidence**
> One US state wasted $250m on failed software projects that were over-ambitious. A subsequent report said that the state must, in future, break projects into a workable size.[24]

> **Evidence**
> A large insurance company undertook a project in which the staffing grew to such an extent that the management overheads were not worthwhile, and communication became difficult. They now insist that senior management are able to see 'both ends of the tunnel' at all times by making projects modular, for example with a maximum duration of 18 months, and no more than 50 staff.[25]

Terminology

E.3 There are two significant dimensions to large IT-enabled business change projects. One is the range of business functions that they seek to support, and the other is the level of support that they offer to those business processes. Both of these dimensions offer a way to break the work into components that are more manageable. One is a modular approach; the other is an incremental approach. These are illustrated in Figure 1.
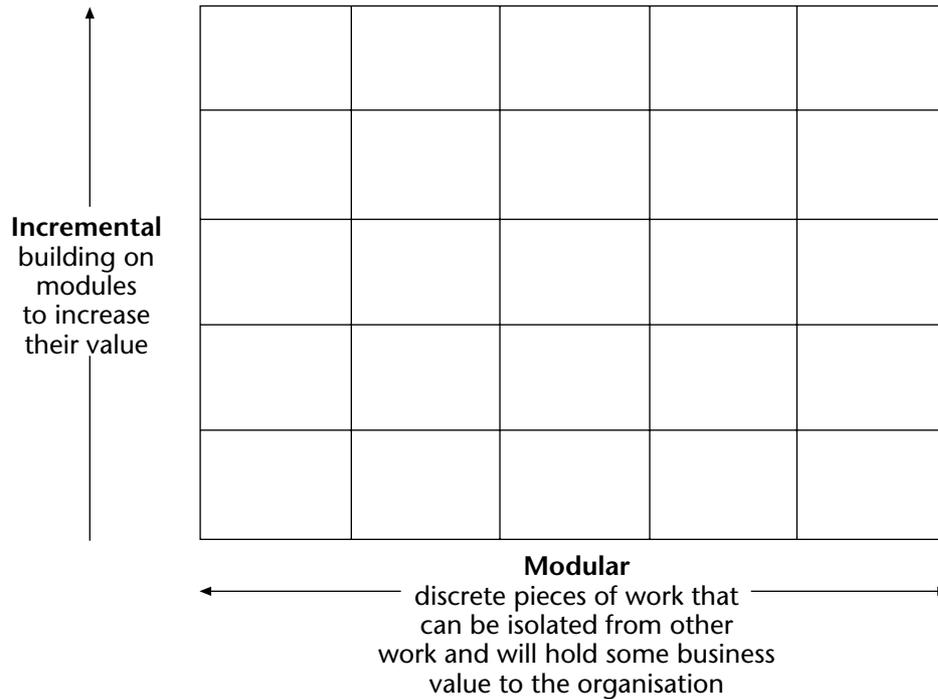
Incremental
building on
modules
to increase
their value

Modular
discrete pieces of work that
can be isolated from other
work and will hold some business
value to the organisation

Figure 1

What do we mean by 'modular'?

E.4 A module is a discrete part of an overall programme of work that offers some value to the organisation, even if the other parts of the programme are not completed.

E.5 As an example, the Microsoft Office suite could be seen as comprising a number of modules, including Word, Excel and PowerPoint. Each of these modules has value in its own right, but several modules are needed to meet the overall requirements of most business areas.

E.6 In a modular approach, the overall business requirement is delivered by providing IT support in modules, each able to underpin a limited set of business processes.

What do we mean by 'incremental'?

E.7 An incremental approach to development begins with a component of the overall system that is deliberately limited in functionality. That component is then built on to increase its value to the organisation.

E.8 Again using Microsoft Office as an example, the development of Word from its first release through to Word 97 could be seen as part of the incremental development of that product. Microsoft did not attempt to build all the functionality of Word 97 into the first release of Word, but created a simpler version with a usable set of facilities, then built on that to create later increments.

How modular and incremental approaches can be used to reduce risk

E.9 If the business requires IT support to a wide range of business processes, and to a high level of functionality, then delivering this in one step will often prove to be a challenging project with only limited chances of overall success. Such a project is represented in Figure 2.
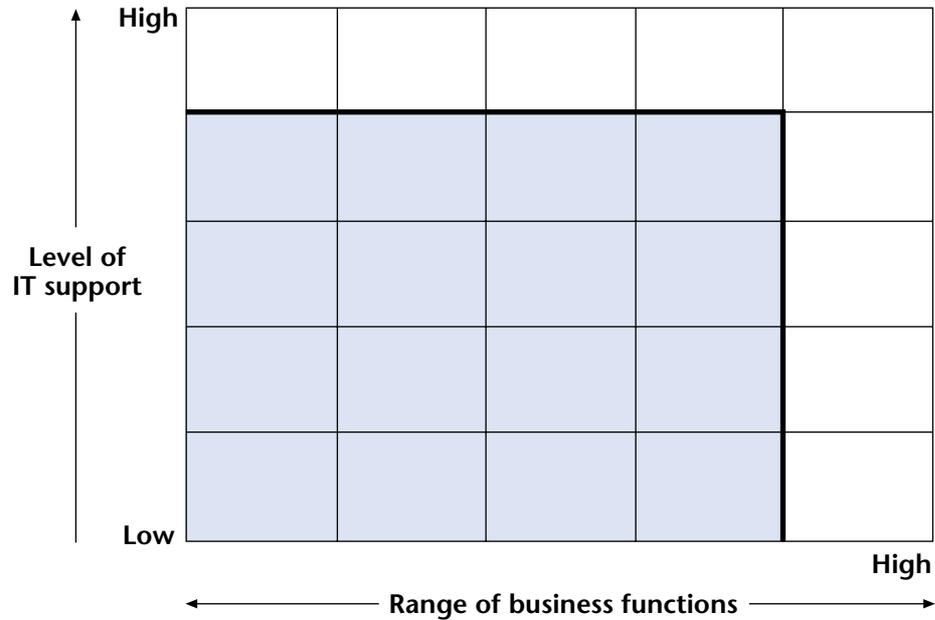

Figure 2

E.10 In order to undertake such a challenging project successfully in one step, then the project team and their suppliers will require a very clear view of the requirement, a united, committed management team with substantial experience of such activity, and then perhaps some measure of luck.

> **Evidence**
> Following a series of high-profile failures of large IT projects in the US, the President signed the 1996 IT Management Reform Act, requiring agencies to use modular contracting for acquisition of major systems of IT, to the maximum extent practicable.

Modular delivery

E.11 Rather than seek to provide IT support across a wide range of business functions all at once, an alternative approach is to look at the overall range of business support functions that is required. Those that can be separated out for separate delivery can be identified within an overall business model. These high-priority functions can then be delivered as discrete and much smaller projects, with a higher probability of success (see Figure 3).
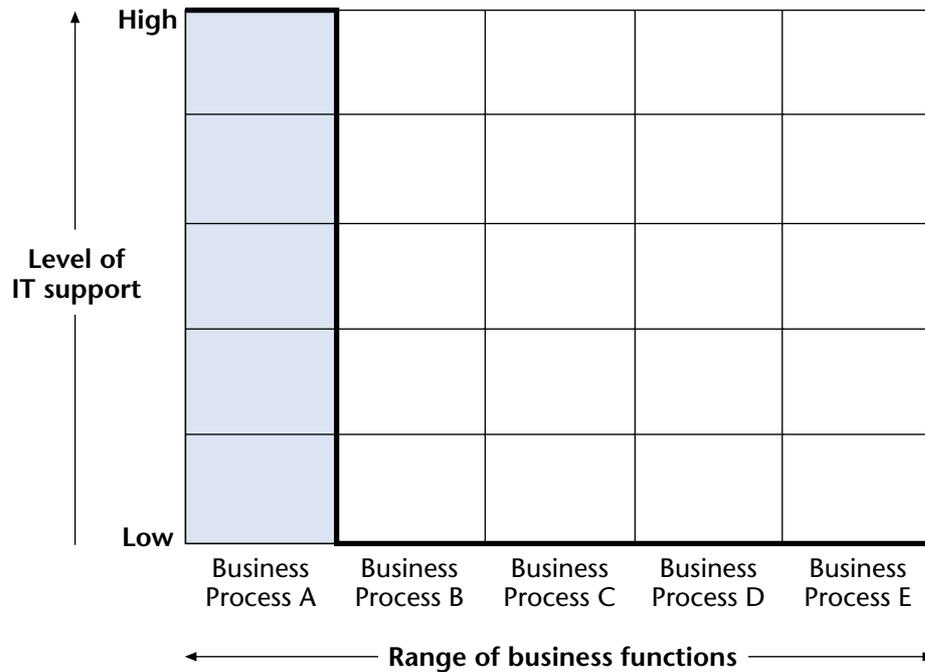

Figure 3

E.12 When resources allow, other modules can be completed. It is critical to this process that the boundaries of each module can be accurately identified at the outset. When this is done, either parallel or sequential delivery can be adopted; progress need only be limited by the capacity of the organisation and its supplier(s). This capacity is most frequently constrained by:

- financial limitations;
- the ability of the organisation's staff to adjust to multiple simultaneous changes;
- the organisation's ability to effectively manage multiple projects; and
- other activities, such as existing operations, that make unavoidable demands on resources.

Incremental delivery

E.13 In the majority of business processes, the full range of IT support is not needed at the outset. For example, there may be some functions that are not needed until users become familiar with the routine functions. In some cases, the need for IT support can be reduced by handling only mainstream activities through the system, and, initially, processing some work off the system.

E.14 Where the level of IT support needed can be phased in, this allows an incremental development approach, which will deliver increasing levels of support in a series of smaller, more manageable projects (see Figure 4).
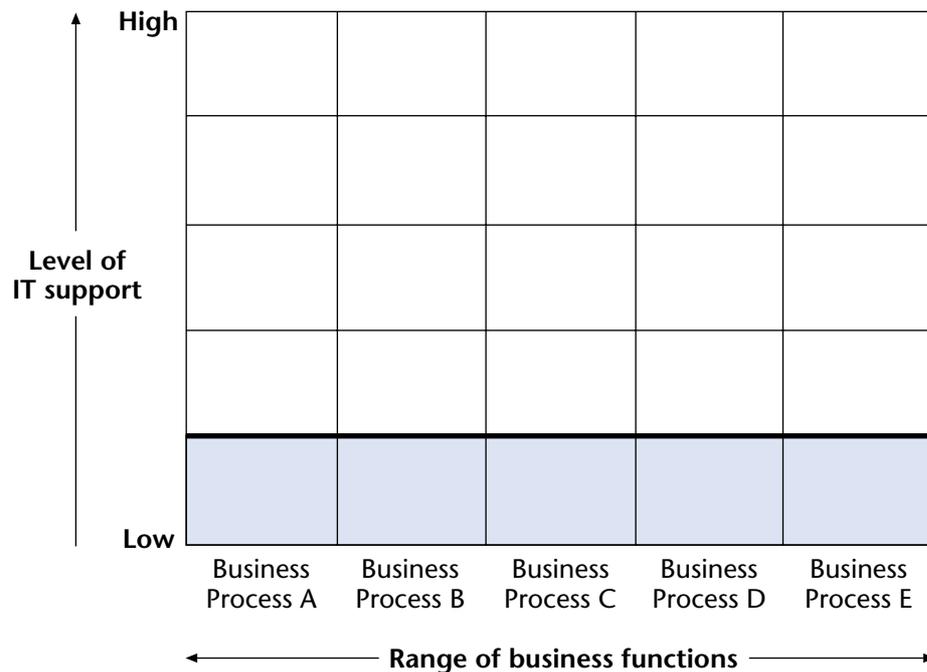

Figure 4

E.15 This approach is particularly valuable where some of the requirements are likely to change due to environmental factors such as legislative or policy change, or improvements in technology. An increment can be specified to meet the requirements that are most certain, then once delivery of that increment is under way, the organisation can re-evaluate its requirements. This will usually prove to be more efficient than trying to specify a module based on uncertain requirements, then making extensive use of change control procedures once development is under way.

Combining modular and incremental approaches

E.16 It is perfectly feasible, and advisable, to combine modular and incremental approaches, thus limiting the risks and delivering support to a wider range of business functions (see Figure 5).
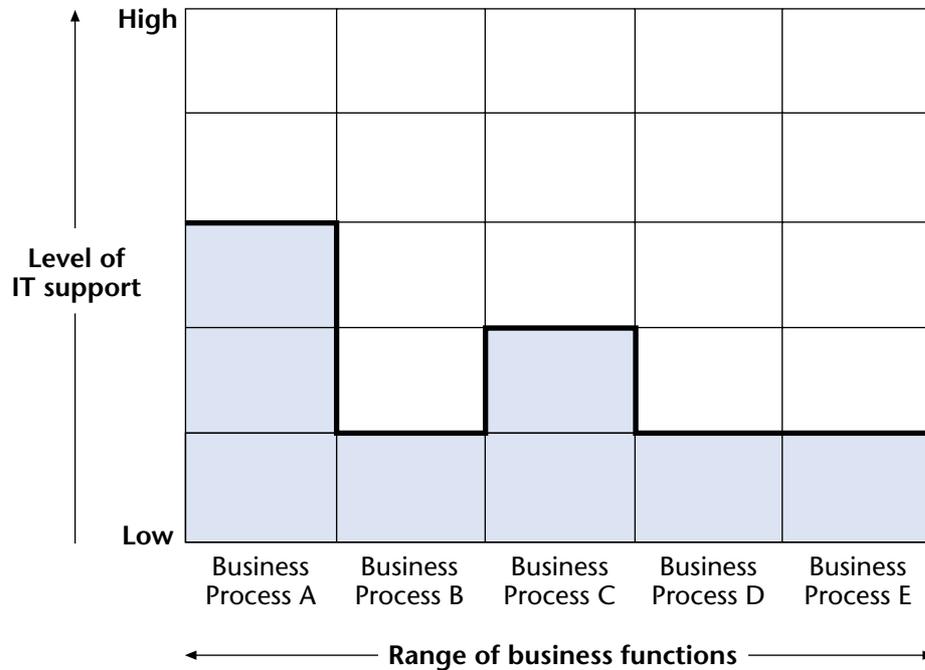

Figure 5

Piloting and phased rollout

E.17 The principles of modular and incremental delivery can also be applied to implementation.

E.18 Following development activity, a very useful stage is a pilot. This is a closely monitored use of the system in a controlled environment for a limited period of time. Pilots use an IT system in the form that is proposed for live running, and can effectively test the integration of the system with the business process, and the implementation and training approaches. This may take place in a single office, or part of an office, chosen to be as representative as possible of the rest of the organisation. The system may be piloted either on real work or in a test environment, before being rolled out to the rest of the organisation.

E.19 The roll-out of the piloted system can be carried out in phases. This allows changes to be made that reflect the experiences of small groups of users. Such an approach will increase eventual acceptance of the system by users. To gain the maximum value from a phased rollout, some breathing space should be built into the plan to allow the lessons learnt from early implementations to be incorporated into later implementations.

Determining the optimum level of modularity/incrementalism

E.20 For any organisation considering how modular/incremental their approach should be, the primary objective is to ensure that the size of each step they plan to take is within the abilities of themselves and their supplier(s), and will allow scope to accommodate changes to the operating environment.

E.21 Achieving this requires a judgement of the capability of the organisation, the capabilities of their suppliers, and the size of the step. Within both public and private sectors, there are numerous examples where each of these has been miscalculated, with predictably disappointing results.

E.22 Organisations' ability to undertake change depends on a range of factors. The organisation's success with changes that have been implemented in the past is the most effective indicator of ability to undertake change in the future.

E.23 If an organisation has little experience of implementing IT projects, then it should adopt a highly modular/incremental approach.

The capability of the organisation's supplier(s)

E.24 There have been several failures in projects across Government where suppliers have attempted to use techniques and technologies that have been successfully deployed in private sector organisations, but which have not been capable of being adapted to meet the requirements of Government.

E.25 When evaluating suppliers' proposals, it is important to consider the effects of the size and nature of business that they will be asked to support. Site references can be useful indicators of supplier capability, but when considering a supplier's performance at a reference site, the department or agency should assess how much this will tell them about the supplier's capability in their own environments.

E.26 Adopting a modular approach may allow smaller or specialist suppliers to deliver part of the requirements, which can have some advantages but may require skilled resources to integrate successfully. Using one lead supplier to front a contract with several sub-contractors can provide a mechanism to help ensure integration.

The size of modules/increments

E.27 One approach to assessing the size of work is to make comparisons with changes that have been undertaken in the past.

E.28 Another is to limit the scale of each module/increment by objective indicators, such as limits on the maximum length of time they should take to develop, their cost, or the maximum number of person-months that a project should take. For software development projects, a measure such as function point estimating offers a way to assess the size of the development.

> **Evidence**
> Research by Capers Jones found that software projects with more than 10,000 function points have a 50% chance of being cancelled.[58]

E.29 The high correlation between the number of function points and the chance of project cancellation clearly indicates the risks associated with large projects.

E.30 It is very difficult to set objective limits for the size of a module or increment in an organisation as diverse as the UK Government. The capacity and experience of the organisation making the change are at least as important as the scale of the change. For some departments, project teams of 70–80 people are routine, for others a project of this size would create a range of complex management issues and potentially generate some difficult and unfamiliar problems.

E.31 Departments will want to set their own limits on size, and should use a measure that they feel is appropriate to their own circumstances. When setting limits, a common guideline is that projects should not take longer than 18 months from approval of the business case through to formal project closure.

E.32 It is also common to limit the bespoking element of 'packaged' software implementations to a maximum of 10% of the size of the package. More than any other type of development work, bespoking packages seems to be very sensitive to increases in scope.

Can a project take an approach that is too modular/incremental?

E.33 Adopting a modular/incremental approach is a risk minimisation strategy. The cost of this strategy lies in two areas.

- The initial consideration of the best approach to modular or incremental delivery will take management time. For an organisation embarking on a major change programme this is often in short supply.
- There is some potential to delay the delivery of business benefits, which will be offset by the potential to deliver a sub-set of the business benefits earlier.

> ### *Evidence*
> The Public Accounts Committee (PAC) Report *Improving the Delivery of Government IT Projects* cited the example of a government body that had adopted an incremental approach to delivery, with software being released throughout the year in stages to reflect when particular functions were likely to be required by users. This led to problems in processing and frustration for staff carrying out complex tasks: some cases had to be handled in three or four stages.[59]

E.34 A rule of thumb is that each component must be capable of being justified in a separate business case (which need not be based on financial benefits). If many of the business cases find a need to refer to benefits delivered by other components in order to justify proceeding, then the number of components is probably too high.

E.35 The business implications of a modular/incremental approach must be considered very carefully. Whilst this approach reduces some risks, it can increase others.

E.36 A clear focus on business benefits should minimise the potential for problems caused by the limited functionality of early increments.

Developing a strategy for a modular/incremental approach

E.37 There are some cases where it is not feasible or necessary to take a modular or an incremental approach. These cases tend to be small, easily managed projects that are straightforward in terms of both business and technology.

E.38 However, for the majority of projects, a modular or incremental approach is preferable. The following factors must be considered very carefully when determining the strategy for a modular/incremental approach.

Business benefit and risk

E.39 The delivery of IT in support of the business is normally prioritised to gain the maximum benefit at the earliest opportunity. However, this tactic should be balanced against the risks. Taking a mid- to long-term view, it may be beneficial in some cases to deliver some low-value but low-risk IT in order to familiarise the organisation and its suppliers with IT project delivery, then take on higher-risk projects when some experience has been gained.

Architecture

E.40 A critical factor in fitting modules together is a clear, shared view of the overall architecture of the final system, and the technical standards that will underpin that architecture.

E.41 The interfaces between modules must be clearly defined at an early stage, and the plans for connections must be co-ordinated and regularly reviewed.

Data

E.42 It is worth specifically considering the data that will be needed to support the overall system, and the data standards that will be used throughout the system. Each module and each increment must be compatible in the way that they use data, or the final result will not be capable of supporting the overall business.

Infrastructure

E.43 The infrastructure that will be needed for the final system should be considered well in advance. It is often worthwhile investing in an infrastructure that will support the final system, even if it is not needed in the early stages. There can be no fixed rules in this; a project that will take many years to reach its final stages may choose to wait before installing the final infrastructure to take advantage of technology changes and price reductions.

Procurement and finance

E.44 Private Finance Initiative contracts can be used to procure modular and incremental work. This can be done by using a single supplier, and contracting to that one supplier for specific modules and increments. In certain circumstances it will be possible to open certain modules to competition and introduce a second supplier. However, the advantages of competition must be set against the potential

for integration difficulties, and the need to avoid the integration risk being brought back into the department or agency.

E.45 In a multi-supplier procurement, the supplier who wins the contract for the first modules may have an advantage when bidding for subsequent modules. Other suppliers' perception of this advantage may lead them not to bid in competition. Careful management is necessary to maintain effective competition and to give other suppliers an equal chance.

E.46 One of the major advantages of an incremental approach is flexibility. The contract for work being delivered incrementally must therefore allow the purchaser to stop development, or change direction as necessary. The contract must not specify future increments too far ahead.

E.47 The requirements for a module/increment must be capable of being expressed clearly and unambiguously. No element of the existing requirement should be defined post-contract. Changes in requirements may be dealt with through a robust change mechanism.

E.48 To achieve this, the recommended approach is for there to be a pre-procurement phase, during which the department or agency spends time considering the exact nature of the project, and how its implementation will help them to meet their business objectives. This thought process should be captured in writing as soon as possible to give a record of the reasons for undertaking the project.

E.49 During the contract documentation phase, the requirements for a module/increment should be specified in terms that are full, clear and unambiguous, and capable of measurement (to facilitate performance monitoring). In addition, both these requirements and the contractor's technical solution should be set out in the contract itself.

E.50 Where an incremental approach is adopted, the requirements that can be precisely defined at contract award may reflect only some of the requirements that might arise over the lifetime of the contract.

E.51 This fact gives rise to a tension between (on the one hand) the need for a clear and stable requirement and (on the other) the need for flexibility. However, IT contracts need not be constructed on the basis that a fixed state will exist, and flexibility does not in itself create contractual uncertainty. As a general principle, the correct way to handle any additional or changed requirements should be to subject them to a set change mechanism, which can itself be more or less prescriptive depending on the nature of the change required. Leaving 'room for manoeuvre' in the requirements is not an acceptable approach.

E.52 The Treasury Task Force found that 'pay as you go' contracts for major software development have a better track record of completion on time and to budget. In recognition of this finding, PFI contracts for incremental and modular work should provide for the contractor to receive some revenue earlier than the date planned for full implementation. Milestone payments, linked to delivery of increments, can provide such revenue for the contractor, and give them incentives to manage delivery to target.

Purchase of preparatory work

E.53 During the pre-contract phase, one mechanism that can help to firm up requirements is the use of prototypes. As this term is used to describe two different concepts, it is important to clarify the purpose of the prototype. Most prototypes are throwaway systems that are built as cheaply as possible to help clarify requirements, or to prove a concept. If this is the intention, then it must be made clear to all stakeholders at the outset why the prototype is being built; it can be very difficult to convince decision-makers that a system which seems to provide the functionality that they want, and which can be seen working immediately, should be written off. This is particularly difficult when the organisation is facing many months of work and substantial amounts of money to develop something with the same functionality but with intangible assets such as being 'scalable', or 'supportable'. Due to the short-term nature of such a prototype, it is unlikely to be suitable for procurement under a PFI arrangement.

E.54 The second type of prototype is used when the requirements are clear, to demonstrate that the supplier can build the required product. This is more of a proof-of-concept exercise. Following evaluation, the prototype is likely to form the basis of the final product.

E.55 If the customer chooses to build a prototype to help determine the requirement, they should consider whether they would want to be tied to the suppliers of the prototype for any subsequent work. In general, they should retain the freedom to choose another supplier.

E.56 Additionally, the customer should not be obligated to proceed beyond prototype work. If experience with the prototype shows that something different is needed, the customer should retain the option to abandon the project. Such an outcome should be considered a successful outcome for the prototyping exercise.

E.57 By purchasing preparatory work, Government can reduce its risks, and better inform itself and its suppliers of its requirements. Some of the approaches that have been taken are set out below.

> *Evidence*
>
> One UK government agency has shortlisted three suppliers, and has agreed a contract with each for a study that will report on their proposed:
> - business process design;
> - implementation plan;
> - service description; and
> - technical interface design with other linked developments.
>
> Their reports will help to confirm understanding of the requirements, and allow the agency to assess the viability of the suppliers' proposals. The result of the study will then form part of the main agreement with the chosen supplier, under a conventional PFI arrangement.
>
> To encourage the bidders to follow this approach, they have each been paid £100,000 from the agency's own funds. The agency views this cost as an acceptable price for the risk reduction it offers.[28]

> **Evidence**
>
> A governmental body has contracted with a single supplier for the installation and management of a desktop infrastructure under a PFI arrangement. This is the first stage in what they intend to be a long-term relationship. From this initial work, they have withheld some of the funding, to be released when the supplier proposes IT-supported business process improvements. In this way, the supplier is encouraged to be innovative, and will have the opportunity to understand the organisation better to help them to form useful proposals. The government body is not obliged to take up any of the supplier proposals, but any they do choose to adopt will be separately negotiated, and may be put to an alternative supplier if the value-for-money is in doubt.[38]

Culture

E.58 The difficulties in changing an organisation's culture are a major cause of change programme failures. Changing culture is not something to be undertaken lightly; research has found that it will require major effort for between four and ten years in larger organisations.

E.59 In planning a modular or incremental approach, management should consider the ability of the culture of the organisation to accommodate change, and the ability of the organisation's leadership to drive that change through. If new business practices, supported by new IT, are in direct conflict with the culture of the organisation, then achieving successful implementation of those new practices will be a slow process that will require a great deal of management effort. By breaking the change into smaller parts, it may be possible to allow the culture of the organisation to become more familiar with change, which can then allow more radical moves in the future.

Configuration management

E.60 The identification and tracking of all the components of the overall system must be rigorous if parallel modular developments are to succeed. Both IT and business products must be subject to this configuration management to facilitate, for example, co-ordination of changes to software releases, training material and user instructions. With effective configuration management, multiple changes can be made almost simultaneously.

Change control

E.61 In large modular and incremental developments, where parallel activities are taking place, effective change control systems must be in place.

Integration testing

E.62 Where parallel development is being used, integration testing must be undertaken to ensure that all the components will work together successfully before operational use.

ANNEX F – Bibliography

National Audit Office

Contract to Develop and Operate the Replacement National Insurance Operating System (HC 12 Session 1997–98, May 1997)

Examining the Value for Money of Deals Under the Private Finance Initiative (HC 739 Session 1998–99, August 1999)

Information Technology Services Agency: Outsourcing the Service Delivery Operations (HC 255 Session 1995–96, March 1996)

Inland Revenue: Market Testing the Information Technology Office (HC 245 Session 1994–95, March 1996)

Modernising Procurement (HC 808 Session 1998–99, October 1999)

The Immigration and Nationality Directorate's Casework Programme (HC 277 Session 1998–99, March 1999)

Government Guidance

IS Management Guides

Acquisition (CCTA 1999)

IS Strategy: Process and Products (CCTA 1999)

Managing Change (CCTA 1999)

Managing Performance (CCTA 1999)

Managing Service (CCTA 1999)

Managing Successful Programmes by CCTA (HMSO 1999)

Managing Successful Projects with PRINCE 2, CCTA (HMSO 1998)

PRINCE 2 An Outline, CCTA (HMSO 1997)

Standardisation of PFI Contracts – Information Technology (HM Treasury 2000)

Private Finance Case Studies

Office Systems Infrastructure Review and Implementation Strategy for the Welsh Office – OSIRIS (CITU/CCTA, September 1996)

TAFMIS …and after (CITU/MoD 1996)

The IND Caseworking Programme (CITU/CCTA, October 1996)

Other

Agile Construction Initiative, Constructing the Best Government Client, HM Treasury 1998/99

Collins, Tony with Bicknell, David, *CRASH: Ten Easy Ways to Avoid a Computer Disaster*, Simon and Schuster 1997

Feeny, David F, and Wilcocks, Leslie P, Core IS Capabilities for Exploiting Information Technology, *Sloan Management Review*, Spring 1998, Volume 39, No 3, MIT

Gershon, Peter, *Review of Civil Procurement in Central Government*, HM Treasury/Cabinet Office, April 1999

Heeks, Richard (editor), *Reinventing Government in the Information Age: International Practice in IT-enabled Public Sector Reform*, Routledge 1999

Keen, Peter G W, *Shaping the Future: Business Design Through Information Technology*, Harvard Business School Press 1991

Margetts, Helen, *Information Technology in Government: Britain and America*, Routledge 1999

Mechling, J, and Fletcher, Thomas M, *Information Technology and Government: The Need for New Leadership*, JFK School of Government, Harvard University 1996

Mechling, J, and Sweeney, V, *Overcoming Budget Barriers: Funding Information Technology Projects in the Public Sector*, JFK School of Government, Harvard University 1997

Project Mentors Ltd, *Ten Years of IT Project Problems*, November 1996

Public Accounts Committee, *Improving the Delivery of Government IT Projects,* January 2000

Remenyi, Dan, *Stop IT Project Failures Through Risk Management*, Butterworth Heinemann 1999

Sauer, Chris, *Why Information Systems Fail: A Case Study Approach,* Alfred Waller Ltd 1993

Standish Group, The, *The CHAOS Report,* 1995

Standish Group, The, *Unfinished Voyages,* 1996

Useful Links

Cabinet Office
http://www.cabinet-office.gov.uk/

Central Communications and Telecommunications Agency (CCTA)
http://www.ccta.gov.uk/

Central IT Unit, Cabinet Office (CITU)
http://www.citu.gov.uk/

e-Envoy, Office of the
http://www.e-envoy.gov.uk/

Government Commerce (OGC), Office of
http://www.ogc.gov.uk/

Government Information Service (Open)
http://www.open.gov.uk/

Her Majesty's Stationery Office
http://www.itsofficial.net/

HM Treasury
http://www.hm-treasury.gov.uk/

Information Age Government Champions (IAGC)
http://www.iagchampions.gov.uk/

National Audit Office (NAO)
http://www.nao.gov.uk/

Useful Links

ANNEX G – Glossary

Throughout this report, the use of project management terminology is designed to fit with PRINCE 2, as the most commonly used project management methodology in Government.

Terms

Benefits – the positive outcomes, tangible or intangible, that a project or programme is being undertaken to deliver, and that justify the investment.

Benefits realisation – the practice of ensuring that projects or programmes produce the projected benefits claimed in the business case.

Business – the activities which an organisation undertakes to meet its objectives.

Business change – altering the way in which business activity is carried out to improve performance or meet new or changed objectives.

Business case – the rationale for undertaking a project or programme, and for committing the necessary resources, setting out the benefits to be achieved. This should be constantly monitored throughout the life of the project or programme.

Business development – the ongoing process of analysing and understanding the links between business change and the ways in which a project supports it.

'The Centre' – collective term for No.10, Cabinet Office, HM Treasury and their agencies, including the Office of Government Commerce.

Cross-cutting – 'Cross-cutting' refers to a policy or service where there is joint working between Government organisations.[44] In the context of projects or programmes, a 'cross-cutting project (or programme)' is one with an objective, or set of objectives, requiring contributions from more than one government organisation.

Government – the term 'Government' is used in this report to describe central UK government departments and their agencies. The approach that the devolved administrations, local government and the NHS will take to the report are described in Section 11.

Implementation – the stage of a project following development, which delivers a service to users. Modular projects may have a number of implementation stages, sometimes interspersed with associated development stages.

Incremental – an incremental approach to development is one that begins with a component of the overall system that is deliberately limited in functionality, then will build on that component to increase its value to the organisation.

IS/IT – IS = Information system, which is any procedure or process that provides a way of storing, acquiring, processing or disseminating information. IT = Information Technology, which is any use of equipment to provide an information system.

Modular – a module is a distinct part of an overall programme of work that offers some value to the organisation, even if the other parts of the programme are not completed.

Partnering – a procurement arrangement where a department or agency and a supplier commit to a long-term relationship which may cover both the supply of ongoing services and the award of new work, including development and service provision.

Peer review – using practitioners from one part of an organisation, or drawn from a group of organisations across Government, to perform a targeted scrutiny of a project in another.

Pilot – a closely monitored usage of a system in a controlled environment for a limited period of time. Pilots should use the IT system in the form that is proposed for live running, so as to effectively test the integration of the system with the business process, and the proposed implementation and training approaches.

Private sector – the term 'private sector' is used in this report to describe commercial enterprises or companies. We have spoken to a number of firms to compare and learn from their experiences of IT projects. The term is *not* used to describe companies that supply IT and related services to Government or private sector companies, who are denoted by the term 'suppliers' (see below).

Project – a specific suite of work aiming at a unique outcome, or series of outcomes, as distinct from being a repetitive process.

Prototype – this term is generally used to describe two different concepts. Most prototypes are throwaway systems, built as cheaply as possible to help clarify requirements or to prove a concept. Due to the short-term nature of such a prototype, it is unlikely in itself to be suitable for procurement.

The second type of prototype is used when the requirements for a product are clear, and is used to demonstrate that the supplier can build the required product. This is more of a proof-of-concept exercise. Following evaluation, the prototype is likely to form the basis of the final product.

Programme – a portfolio of projects that aims to achieve a strategic goal of the organisation, planned and managed in a co-ordinated way.

Procurement – the whole process from identifying a business need to fulfilment of contract. Our recommendations are based on the Gershon Report's[60] wider definition of procurement, which draws in all the activities around ongoing management of a contract throughout its life and the development of long-term relationships with suppliers, as opposed to just the formal processes of arriving at a contract.

Senior Responsible Owner – the single individual with overall responsibility for ensuring that a project or programme meets its objectives and delivers the projected benefits. This individual should ensure that the project or programme maintains its business focus, that it has clear authority and that the context, including risks, is actively managed. The individual should be recognised as the owner throughout the organisation (see Section 2).

Stakeholders – parties with an interest in the execution and outcome of a project or programme. They would include business streams affected by or dependent on the outcome of a project. Other stakeholders might include the central departments.

Supplier – a company providing products or services on a commercial basis to part of Government or a company. Used in this report in relation to suppliers of IT-related products or services.

ANNEX H – Endnotes

The notes below identify the evidence given in the text. Please note that as some of the private sector companies which co-operated with this study asked that their details not be made available, we have not given names for references in this category. In addition, it should be recognised that the evidence included does not purport to give a comprehensive account of any of the projects cited: it only illustrates points of specific relevance to the analysis of this report.

1   Private sector

2   CRAMS project, Probation Service, Home Office

3   National Air Traffic Services (NATS), National En Route Centre (NERC) Project

4   Silicon.com

5   Y2K Project, Cabinet Office

6   Inland Revenue

7   Private sector

8   Joint venture between the Benefits Agency and Post Office Counters Limited

9   Standish Group

10 National Insurance Recording System 2 (NIRS2), Inland Revenue

11 Joint venture between the Benefits Agency and Post Office Counters Limited

12 Central IT Unit survey

13 CAPITAL project, Ministry of Defence

14 Private sector

15 Department of Social Security

16 Department of Social Security

17 CRAMS project, Probation Service, Home Office

18 Department of Social Security

19 QUANTUM project, Prison Service, Home Office

20 Immigration and Nationality Directorate, Home Office

21 Passports Agency, Home Office

22 NATS, NERC Project

23 Ministry of Defence, USA

24 California, USA

25 Private sector

26 QUANTUM project, Prison Service, Home Office

27 CAPITAL project, Ministry of Defence

28 Criminal Records Bureau, Home Office

29 Central IT Unit Survey

30 Private sector

31 Ministry of Defence

32 Private sector

33 Available on GSI

34 Central Computer and Telecommunications Agency

35 Immigration and Nationality Directorate, Home Office

36 National Insurance Recording System 2 (NIRS2), Inland Revenue

37 Immigration and Nationality Directorate, Home Office

38 QUANTUM project, Prison Service, Home Office

39 Inland Revenue and EDS Partnership

40 Private sector

41 NATS, NERC project, NIRS2; joint venture between the Benefits Agency and Post Office Counters Limited; Immigration and Nationality Directorate

42 Employment Service Partnership; ACCORD, DSS; CAPITAL system, Ministry of Defence

43 NERC project; NATS

44 *Wiring it Up, Whitehall's Management of Cross-Cutting Policies and Services*, Performance and Innovation Unit, Cabinet Office, January 2000

45 Standish Group

46 *IT Skills and the Corporate IT Strategy*, HMSO January 2000

47 Datamonitor/Microsoft research, published at the summit in Technology Innovation and Skills Training (Brussels, March 2000)

48 Central Computer and Telecommunications Agency

49 Inland Revenue

50 Inland Revenue

51 Her Majesty's Customs and Excise

52 Ministry of Defence

53 STAR programme, USA-www.star.gsa.gov

54 Private sector

55 Private sector

56 Inland Revenue

57 Private sector

58 Capers Jones

59 *Improving the Delivery of Government IT Projects*, Public Accounts Committee, January 2000

60 Gershon Peter, *Review of Civil Procurement in Central Government*, HM Treasury/Cabinet Office, April 1999

Endnotes 58 and 59 refer to Annex E, available in web version only.